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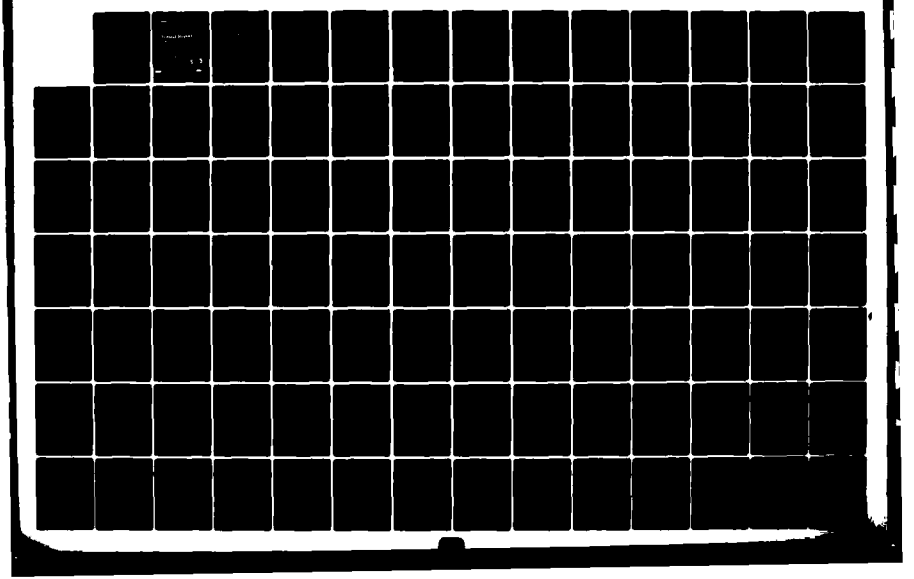

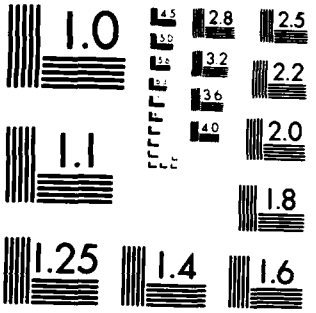

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Annual Report 1982

January 1983

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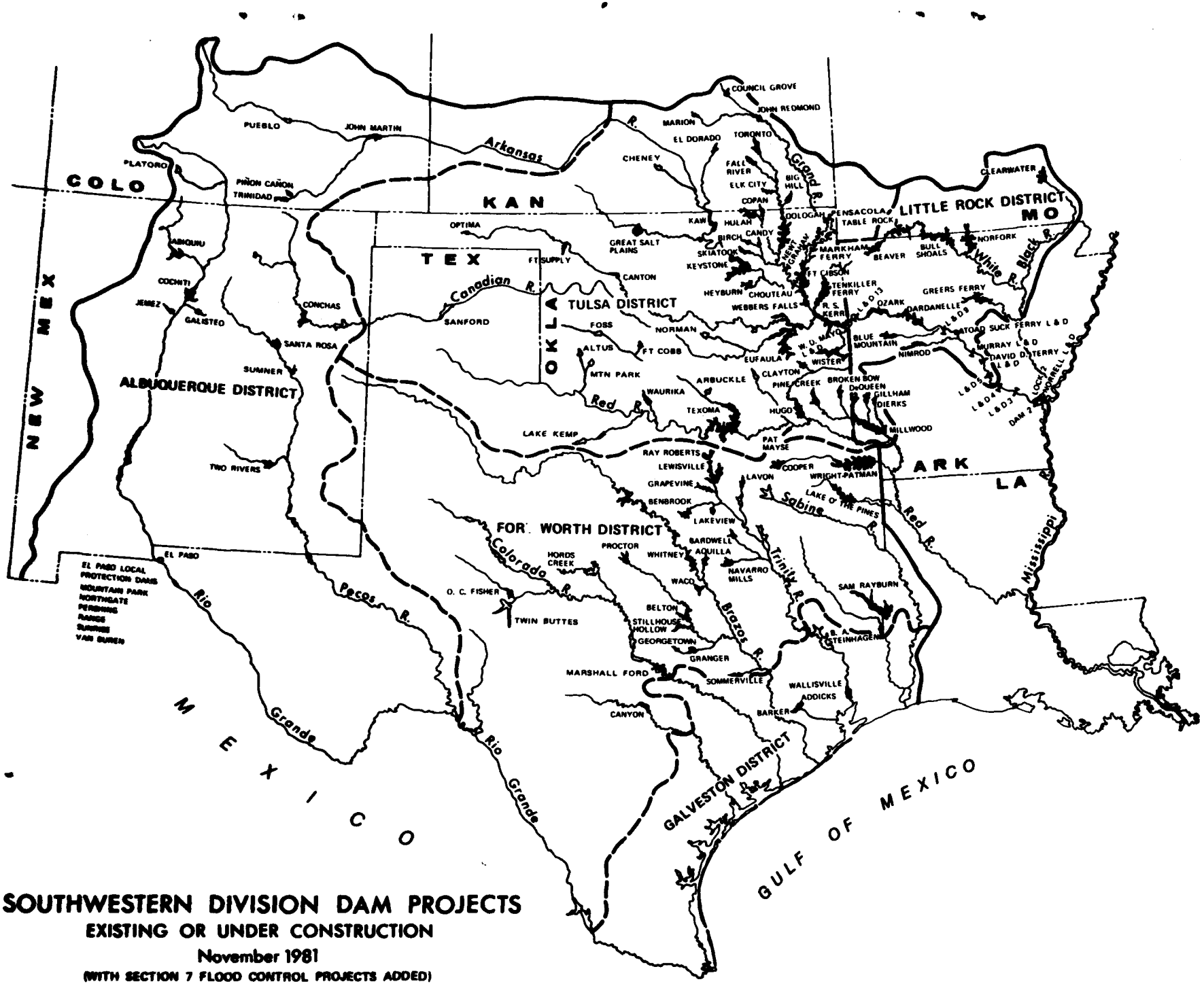

SOUTHWESTERN DIVISION DAM PROJECTS

EXISTING OR UNDER CONSTRUCTION

November 1981

(WITH SECTION 7 FLOOD CONTROL PROJECTS ADDED)

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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Sediment activities
Data collection and management
Water control automated data system

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report presents activities and accomplishments of the Southwestern Division (SWD) as related to reservoir regulation and water management activities for fiscal year 1982. Also presents detailed summaries of reservoir conditions, water quality activities, and coordinating activities with other Federal and non-federal basin interests groups.

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1982

ANNUAL REPORT

RESERVOIR CONTROL CENTER

SOUTHWESTERN DIVISION

PLATE

TABLE OF CONTENTS

TABLE OF CONTENTS
(CONTINUED)

TABLE OF CONTENTS
(CONTINUED)

PAGE

RESERVOIR CONTROL CENTER

1982 ANNUAL REPORT

SECTION I - INTRODUCTION

SECTION I - INTRODUCTION

1. PURPOSE OF REPORT. This report presents activities and accomplishments of the Southwestern Division (SWD) as related to reservoir regulation and water management activities through FY 1982. Detailed summaries of reservoir conditions, water quality activities, minutes of coordinating committee meetings and minutes of the annual RCC meeting are also included.

This report is prepared in conformance with ER 1110-2-1400, 24 April 1970, Reservoir Control Centers, paragraph 12c.

2. REFERENCE. Reservoir Control Center (RCC) - SWD Guidance Memorandum, dated June 1971, approved by the Chief of Engineers as a general basis for RCC's activities.

3. OBJECTIVES OF THE RESERVOIR CONTROL CENTER. The SWD RCC was established in 1967 by the Chief of Engineers to improve capabilities of the Corps of Engineers to perform its civil works mission as related to operation of reservoirs. The SWD RCC carries out its responsibilities by:

a. Organizing coordinating committees and/or participating in committees to accomplish mutual understanding among water interests regarding use and regulation of water resources.

b. Providing interbasin coordination of day-to-day regulation needs for river systems for all purposes.

c. Surveillance of daily operations and continuous analysis of project needs.

d. Furnishing technical assistance to personnel of district offices in related efforts to improve the reliability of regulations and hydrologic determinations.

SECTION II - WATER CONTROL ACTIVITIES IN SWD

SECTION II - WATER CONTROL ACTIVITIES IN SWD

1. RESERVOIR REGULATION

a. Lake Regulation During FY82. Lake regulation activities for division lakes and Section 7 lakes during FY82 are summarized in Section VI of this report. The division considers the continued progress made in the development and installation of its water control automated data system to be one of the most significant activities of the past year. For a more detailed discussion on this activity, see paragraph 4d of this section.

Operational data summaries for all of the SWD projects, including Section 7, are shown in tabular form, two projects per page in Section VII. An index, by basin, to these tables is included which also lists pertinent data for each project. Also included is a listing by alphabetical order giving names of both the lake and dam where different.

b. Regulation Plans. Computer simulations have continued on the Red River Basin and Arkansas River Basin models. Multi-Reservoir and single Reservoir modeling has been completed for evaluation of varied regulation plans on proposed hydropower projects. Eight projects on the Arkansas and four on the Red have been studied. Modeling of Wister Lake was also completed to determine what the effects would be on flood control operations by raising its conservation pool.

c. Water Control Manuals. A summary entitled "Status of Water Control Manuals in SWD" is included in Section IV of this report. The summary shows the status and completion schedule through FY 1985 for manuals on 112 lakes and 12 river systems. At the end of FY 1982, there were 90 Corps of Engineers projects (73 lakes and 17 locks and dams) and 16 Section 7 lakes in operation in SWD.

During FY 1982 the SWD Reservoir Control Center received and reviewed nine water control manuals that were submitted by the districts in the form of new manuals and revisions to old manuals. The schedule for FY 1983 includes the development of seven new manuals and the revision of manuals for nine projects.

d. Section 7 Project Regulation. Within SWD there are 16 existing reservoirs owned and operated by other agencies. Presently the Bureau of Reclamation is constructing an additional reservoir (McGee Creek) to be located on Muddy Boggy Creek, a tributary of the Red River. The flood control storage contained in these projects are regulated by the Corps in accordance with Section 7 of the Flood Control Act of 1944. The districts are continuing efforts to bring the manuals and regulation plans into compliance with requirements contained in paragraph 208.11, Part 208 Flood Control Regulations, Chapter II, Title 33 of the Code of Federal Regulations (41 FR 20401, May 18, 1976). Due to the varied approaches between the districts on real time regulation for Section 7 projects, a SWD policy statement was formalized during 1981.

During FY82, progress was made in finalizing SWD Policy. OCE issued additional guidance and SWD held additional meetings with the Bureau of Reclamation. It is anticipated that Policy will be finalized during the upcoming year.

2. SOUTHWESTERN DIVISION WATER QUALITY PROGRAM AND ACTIVITIES.

a. Responsibilities. The RCC is assigned the responsibilities to coordinate and direct activities in SWD in the water quality field. This provides for water quality objectives being included as an effective part of our total water management program. Specific activities in the water quality program are as follows:

(1) Conduct technical studies and provide guidance on water quality control.

(2) Review and provide technical assistance in programs for predicting the natural and modified water quality in impoundments, rivers, coastal areas, and estuaries for project planning, design, and regulation activities.

(3) Review and provide technical assistance on project design and reservoir regulation studies in connection with water quality control performed within the division, including multiple level outlet facilities, reservoir simulation studies, reregulation structures, and release reoxygenation systems.

(4) Provide coordination support in interagency liaison as related to water quality control through reservoir regulation, including formulation of operating plans and cooperative data collection programs.

(5) Coordinate with Planning and Construction-Operations Divisions, and the districts on SWD water quality investigation programs.

(6) In coordination with the Geotechnical and Materials Branch, manage the water quality investigation activities of the division laboratory.

(7) Responsible for technical engineering solutions to water quality problems in existing projects; reviewing, coordinating, and acting as consultants to other engineering and planning elements in the division office and district offices.

(8) Coordination of division actions required by ER 1130-2-334 for reporting of water quality management of Corps projects.

b. Organization.

(1) Division. Water quality activities in SWD are coordinated by the RCC. These duties require the part-time efforts of three engineers. One of these, Mr. Charles Sullivan, Chief, RCC, is a member of the OCE Committee on Water Quality.

(2) Districts. Presently the organizations for water quality management vary within the districts. In all of the districts, water quality associated with planning and design of the projects is coordinated by organizational elements within the Engineering or Planning Divisions. In two of the districts the monitoring and reporting specifically required by ER 1130-2-334 and that required for dredging and other construction are done by the Construction and Operations Divisions.

(3) Laboratory. The division laboratory is fully staffed and equipped to conduct the tests of water usually required by the districts for use in planning, design, construction, and operation of the projects.

c. Special Activities in FY82.

(1) Specific Project Problems. Water quality related problems and activities at individual projects are discussed in the district reports. Some of the more significant are summarized below:

(a) Minor fish kills occurred below Lake Texoma and in the Cimmarron River arm of Keystone Lake.

(b) Pine Creek Lake. Sampling was conducted to evaluate the effect of hypolimnetic releases on the Wright City, Oklahoma, water supply.

(c) Taylor Bay Siltation Study. A study is underway to determine the effects of suspended sediment on fishing in Taylor Bay near Augusta, Arkansas.

(d) Table Rock Dissolved Oxygen Problems. Tests were made using the low level emergency conduits as a source of oxygenated supplemental releases. Due to the severe cavitational impulses experienced, the conduits will no longer be used. Further tests of oxygen injection into a house unit penstock are planned this year.

(e) Santa Rosa Lake. Tests are planned to monitor the effects of inundation on gypsum deposits in the reservoir area.

(2) Annual Water Quality Meeting. SWD's annual Water Quality Meeting was held on 19 February 1982 following the OCE sponsored Water Quality Seminar. District representative made short presentations on studies conducted during 1981 in a joint meeting with the OCE Water Quality Committee. Other items discussed were 1) SWD regulation on water quality, 2) district water quality goals, and 3) utilization of SWD Laboratory.

d. Long-Term Goals. The following are presently considered as long-term, continuous goals of this division, and consequently the RCC, in the water quality field.

(1) To obtain sufficient water quality information from all of our projects to determine whether all state standards and environmental objectives can be met without adverse impact on authorized uses.

(2) To promote the organization of effective water quality elements in the division and districts to obtain the maximum coordination for handling all water quality matters in the division.

(3) Provide helpful and thorough guidance to the districts on water quality matters.

e. Immediate Goals. The following actions have been scheduled for accomplishment by the RCC in the near future:

(1) Continue the two to three year intensive monitoring program for SWD reservoirs. This ongoing program will be continued until base line data are available for all SWD reservoirs.

(2) Review the basic water quality monitoring program this year.

3. SWD SEDIMENT PROGRAM AND ACTIVITIES. Sediment activities for the year included approval of (1) Cochiti Lake Sedimentation Survey Letter, (2) Revisions to Clayton Lake DM 15 - Sedimentation and Degradation Range, (3) resurvey results (Form 1787) for Toronto Lake, R. S. Kerr L&D 15, Webbers Falls L&D 16, and Keystone Lake, and (4) a resurvey schedule for all districts for the period of FY 1983-85.

4. DATA COLLECTION AND MANAGEMENT.

a. Stream Gaging Program. Much of the data required for regulation, investigation and design of water resources projects result from the reporting and measurement of flow, water quality, and sediment. Most of these data are obtained through a Cooperative Stream Gaging Program between the Corps and the USGS. During FY 1982 the SWD-USGS cooperative program included 523 stations. An additional 76 stations were operated independently by the district Corps offices. In FY82, the total cost of the SWD program was $2.1 million with $1.7 million being transferred to the USGS. The following tabulation shows a breakdown of the program by class of funds used to finance the program.

Class of Funds	Number of Stations	C of E Cost ($1,000)
Survey Investigation	11	41
General Coverage	50	37
Planning	11	63
Operation & Maintenance	420	1,715
New work & construction	31	148
Total:	523*	2,004

NOTE: *Some stations are counted under more than one classification.

b. Cooperative Reporting Networks. The National Weather Service (NWS) and the Corps of Engineers began their 45th year of cooperation in establishing and operating networks of river and/or rainfall reporting stations. Reports from these stations supplement those stations that are maintained by the NWS which are made available to the Corps of Engineers for flood control operations and flood forecasting.

Data from these networks are transmitted to the Corps of Engineers district and division offices via telephone and teletype service from the NWS collection office. SWDO maintains teletype drops on three circuits which carry data from these networks. One of the teletypewriters receives the Federal Aviation Administration Circuit (Service C) which provides meteorologic data, river stage information and basic public weather forecasts. The other two teletypewriters receive two circuits of the NWS RAWARC network. These two circuits carry radar, hydrological reports, and other data essential to our water control management functions. These data include detailed precipitation reports, river stage information, warnings and descriptions of severe storms and floods, and river forecasts developed by the NWS.

The estimated FY 1982 cost for SWD responsibilities in supporting 613 rainfall stations in the Cooperative Reporting Networks was $203,998.

c. Current Monitoring System. In June 1982 RCC began using our Harris Computer located in the Southwestern Division office, for computations that are necessary in the RCC's daily water control activities. Two districts are using desk-top minicomputers to assist in polling data from about 70 stations. To date, Harris minicomputers have been installed in the SWDO, Tulsa District and Fort Worth District offices as part of the water control automated data system. The following paragraphs describe continued efforts in developing the total system.

d. Water Control Automated Data System.

(1) The "Water Control Data System Master Plan" for SWD, dated April 1979 was approved by the Office, Chief of Engineers in June 1979 for funding and detailed design. The major components of the system are:

(a) Remote Gaging Stations. The plan includes about 100 lake gages and between 200 and 350 river gages that are to be equipped with data collection platforms (DCP) by the end of FY 1984.

(b) Communication. The DCP's will tranmit the remote gaging station data over the Geostationary Orbiting Environmental Satellite (GOES) System. Communication between the district and division data processing units will be via telephone lines.

(c) Data Acquisition and Processing Equipment. The distributed processing system dedicated to water control activities will contain mini-computers located at the division office and three of the five district offices. Two of the districts will remote off the division machine. They will also be compatible in order to allow for the use of common software and data exchange between offices. The data bases at each district office will be available to the division office.

(d) Data Display and Distribution. Data will be displayed in individual offices with color graphic CRT's, plotters, and printers. Provisions will be made to distribute and/or exchange data with other cooperators.

Examples of data exchange requirements are the Office of Chief of Engineers, Lower Mississippi Valley Division (LMVD), Southwestern Power Administration (SWPA), state and local river authorities or agencies.

(2) During FY82 the remainder of the minicomputers provided for in the 1981 contract with Harris Corporation were delivered. This included a Harris H-100 and H-500 for the Fort Worth District a H-100 and H-500 for the Little Rock District and a H-100 for the Tulsa District. This completes the acquisition of the computers for the system. Racal-Vadic auto-dialing hardware was also acquired for the Dallas, Fort Worth, Little Rock, and Tulsa sites. Printing terminals, plotters, black and white CRT's, color graphic CRT terminals and communication devices are being acquired at each site on an as needed basis.

(3) Plans for software development continued and an effort is being made to utilize existing software where possible. A number of existing programs currently being used by Water Management have been converted from the Honeywell computer to the WCDS Harris computers. In order to provide guidance for development of a system of software for the WCDS, the development of a "WCDS Software Design Manual" was begun. This document is expected to be completed in early FY83. The Software Design Manual will define the WCDS user needs and present a system of software designed to satisfy the user needs. It will also provide guidance criteria for system software design and development. It will also attempt to quantify the resources required to develop the software required to enable the WCDS to perform at its design capability.

(4) Design Memorandums (DM's) are to be prepared for each river basin showing the requirements for data collection platforms (DCP's) for the basin. These DM's are to include the reporting needs in the basin, schedule for installation of the DCP's, locations, funding and maintenance plans. During FY82 DM's were prepared for: Trinity River Basin, Sulphur-Cypress River Basin, Brazos River Basin, San Jacinto River Basin and Little Rock Field Equipment (Arkansas-White-Red River Basins). SWD is participating in a Random Reporting test being conducted by the National Earth Satellite Service (NESS), the Corps of Engineers, and Bureau of Reclamation for the purpose of obtaining factual information concerning this type of data collection reporting. The major goals of the test are to determine (a) reliability; (b) manageability; (c) ability to operate within NESS guidelines for R/R; (d) efficient use of NESS resources; and (e) type of R/R operation NESS will support within its system.

At the end of the FY, there were 84 DCP's installed, 75 on hand for installation and spares and 94 on order. There are also 76 gages equipped with DARDC's.

(5) Funding. During FY82 expenditures from the PRIP fund were $741,000 for the remaining computers in the system. The 136 DCP's were purchased from O&M and construction funds.

e. Cooperative Data Bank and Forecasting Activity. During the past year RCC has continued to participate in and encourage the advancement of programs for automated data collection and interagency cooperation in forecasting activity and data bank utilization. Currently, SWD maintains a data bank on the in-house computer for Daily Lake Reports, Daily Power Generation Reports, and Daily River Reports. These data banks are updated daily and the data are maintained unitl the end of the month then used for monthly summaries. These data, with several district auxiliary programs and data bases, have been used to make forecasts and reports available for exchange as needed between the districts and SWDO. In addition, the data are made available to other users which have a need to be aware of the water control activities on a real-time basis. These users include SWPA, NWS, LMVD, and OCE. SWD has also participated in a program to develop a data base for water control information for the Mississippi River Basin.

SWD districts have participated in storing data in the EPA STORET and USGS WATSTORE data banks. Both of these systems have also been used for retrieving data. The Little Rock District has placed water quality data in the EPA STORET data system and Tulsa District has placed sediment data in the WATSTORE data system. Albuquerque discontinued inputting data into STORET in November 1982.

5. COORDINATION WITH WATER MANAGEMENT INTERESTS.

a. Internal.

(1) The Hydrologic Engineering Section (the other section in the Water Management Branch) furnishes support to RCC by conducting systems studies of reservoir regulation.

(2) The benefits deriving from personal contact with other persons associated with water management activities are well recognized by the RCC. For this reason, special emphasis has been placed on maintaining this personal contact through meetings and workshops sponsored by the districts and the RCC with the marketing agency, project personnel, river basin authorities, other RCC's, the Chief's office and others.

(3) Future workshops will be needed for establishing criteria and implementation procedures for comprehensive interagency data banks. The new automated data collection and handling equipment being acquired by the Corps and NWS will require extensive coordinating efforts over the next few years.

(4) A meeting of lake regulation personnel of each of the districts and the RCC is held annually at the division Reservoir Control Center for the purpose of discussing timely topics and exchanging information. The minutes of the meeting held on 30 November and 1 December 1982 are included in Section VIII.

b. Other Agencies.

(1) Arkansas River Basin Coordinating Committee. Member organizations include the Corps of Engineers, SWPA, Federal Energy Regulatory Commission (FERC), SCS, Arkansas Soil and Water Resources, Oklahoma Water Resources Board, and Kansas Water Resources Board, Chairman of the committee is Mr. R. Terry Coomes, Chief, Water Management Branch, SWD. The annual committee meetings provide an opportunity for the Corps to present activities, problems, and proposed solutions regarding regulation of flows on the Arkansas River for maximum overall benefits. In turn, representatives of the States and other Federal agencies may critique our activities and present their ideas and special operation proposals.

The 30 April 1982 annual meeting of the committee included a review of the 1981 water control activities in the basin. In addition to the review other subjects covered at the meeting included the following topics:

(a) Water quality activities at selected projects.

(b) Nonfederal hydropower activities.

(c) Federal hydropower activities.

(d) Report on repair of power units at Webbers Falls and Ozark.

(e) Status of navigation projects.

The "Arkansas River Basin Coordinating Committee Annual Report" was discontinued. As an alternative to this report copies of the "Reservoir Control Center Annual Report" will be made available to the committee members. The RCC report contained most of the material which was presented in the committee report. The additional required material will be included in future publications of the RCC report. Minutes of the April 1982 meeting are included in Section VIII of this report.

(2) Trinity River Basin Water Management Interests Group. In order to provide a means for exchanging ideas and coordinating the interests of local, State and Federal agencies and private companies in the regulation and development of water resources of the Trinity River Basin, RCC has initiated and sponsored meetings of the Trinity River Basin Water Management Interests Group.

The twelfth annual meeting of this group was held on 8 June 1982. Attendance included 37 persons representing the State of Texas, several muncipalities, water districts, companies, and agencies of the Federal Government.

Presentations were made by the Corps, Federal Energy Regulatory Commission, U.S. Geological Survey, Texas Department of Natural Resources, City of Denton, City of Dallas, the Tarrant County WC&I District, and the Trinity Improvement Association. An agenda, minutes of the meeting and a list of attendees are included in Section VIII of this report.

(3) Cooperation with Lower Mississippi Valley Division. The SWD RCC continues its cooperation with LMVD and provides observed, as well as forecasted data significant to the water management activities in LMVD. Exchange of data within the Mississippi River Basin has been improved by the development of a Data Management System by HEC on Boeing Computer System for critical river stations within the basin. Both forecasted and current data can be retreived for individual division and district use.

(4) Cooperation with Federal Energy Regulatory Commission. Periodic formal and informal contact through meetings sponsored by RCC keeps Corps and FERC staff members informed on trends and problems associated with production of hydroelectric power. RCC also coordinates the comments on FERC license applications for nonfederal hydropower development at SWD Corps projects.

(5) Cooperation with Southwestern Power Administration. The SWPA is an agency of the United States, established in the Department of the Energy, to execute the purposes of the Flood Control Act of 1944 with respect to the disposition of the electric power and energy made available from the reservoir projects under control of the Department of the Army in the area comprising all of Arkansas and Louisiana and portions of Missouri, Kansas, Texas, and Oklahoma. The scheduling of releases for hydroelectric power production from the 17 Corps of Engineers projects within SWD has a significant effect on the overall water management activities in the division. Therefore, close cooperation and continuous communcation between the Corps and SWPA are mandatory. A Memorandum of Understanding was signed by the SWPA and the Corps of Engineers in 1980. SWPA and SWD are in the process of developing a more detailed operating arrangement to assist in the operations of hydropower projects within SWD.

Specific activities requiring cooperation between SWPA and RCC include determination of financial feasibility for power projects, monthly scheduling of power production, preparation of data for reports to the Federal Energy Regulatory Commission (FERC), and daily coordination of routine data on current conditions, inflow forecasts, and release schedules. The RCC has taken every opportunity to improve and strengthen relations with SWPA through correspondence, regularly scheduled and special meetings, providing access to our time-share data systems, and by special studies aimed at improving energy production and scheduling in the SWD power projects.

SECTION III - FACILITIES AND PERSONNEL

SECTION III - FACILITIES AND PERSONNEL

1. Facilities.

a. Office Space. Since February 1981, all SWD personnel have occupied the new quarters in the Santa Fe Building, 1114 Commerce Street, Dallas, Texas. Space occupied by the RCC includes an open-space working area, conference room and a computer equipment room.

b. Display Facilities. All of the RCC display equipment used for conferences and for briefing of higher authorities is located in the conference room. This equipment includes a triple duty wall display unit containing metal chalkboards, vinyl covered cork boards, and white metal panels adequate for grease pencil or for projection screen; various projection equipment, and a projection screen. In the near future, the RCC anticipates the remodeling of its conference room by adding additional displays, replacing old equipment, etc.

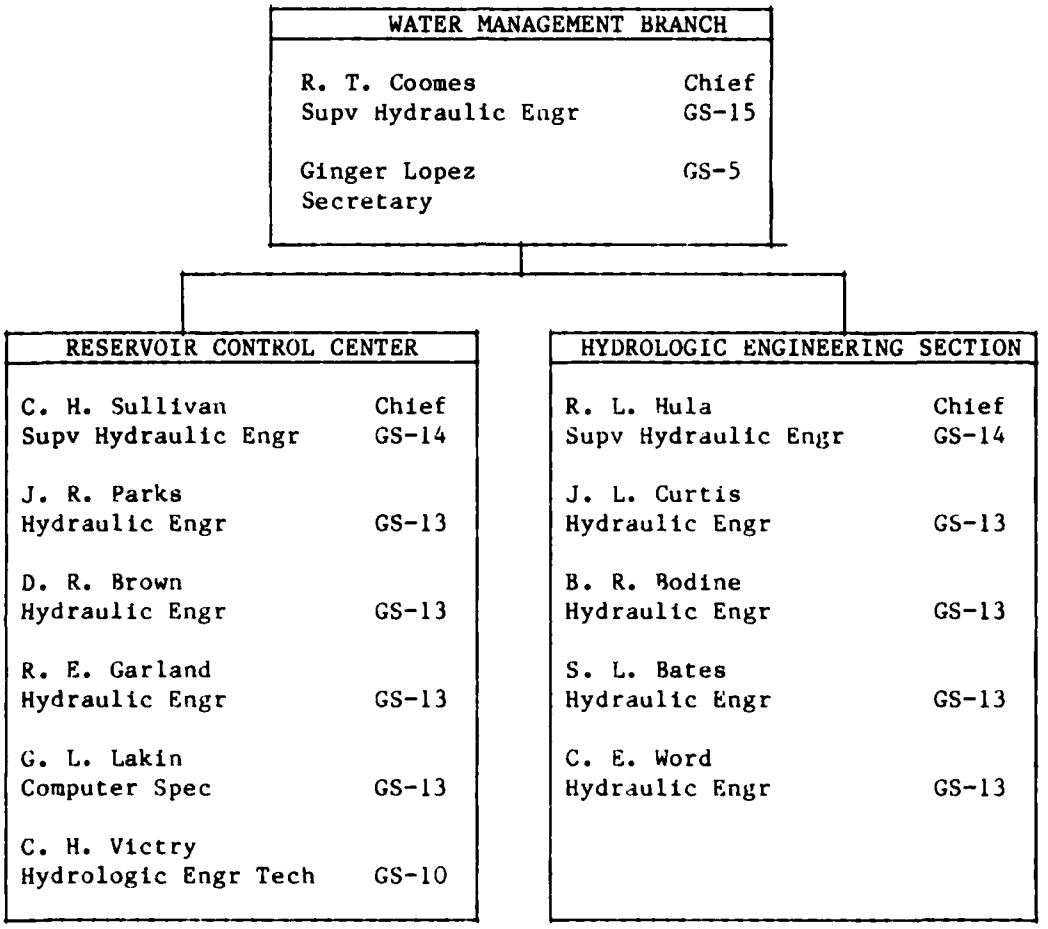
c. Communications Equipment. The computer equipment room contains two hard-copy time-share terminals, a CRT which is hardwired to the Harris minicomputer, a Tektronix color graphics terminal with plotter and digitizing tablet, magnetic tape storage, weather FAX machine, and a small room which houses the three weather teletypes. The time-share terminals are used for access of Harris, SWD, and Boeing computer facilities.

2. Personnel.

a. Staff. The current organization chart for the SWD Water Management Branch is shown in Figure 1. The authorized staff of RCC consists of one supervisory hydraulic engineer, three hydraulic engineers, one computer specialist, and one hydrologic engineering technican. The RCC is supported by the Hydrologic Engineering Section in technical studies.

b. Training. The RCC periodically assesses the training needs of its personnel and schedules that training which is required and desirable for maintaining expertise and capability to fulfill its mission. Scheduled training for the immediate future includes various hydrologic and management courses.

Additional training objectives are accomplished through active participation and leadership by RCC personnel in committees such as the Arkansas River Basin Coordinating Committee, the Red and Trinity River Basin Water Management Interests Group, and the Corps of Engineers Committee on Water Quality.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RESERVOIR CONTROL CENTER
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Figure 1

SECTION IV - STATUS OF RESERVOIR WATER CONTROL MANUALS IN SWD

STATUS OF WATER CONTROL MANUALS IN SWD
(Report Control Symbol DAEN-CWE-16)

Revised: 1 January 1983

RESERVOIR	STREAM	OWNER	DIST	WATER CONTROL MANUAL SUBMITTED	SCHEDULED THRU FY 85	APPROVED
White Riv Master						
Beaver	White Riv Basin	CE	LRD	Dec 54 F		Dec 55 OCE
Table Rock	White Riv Basin	CE	LRD	Oct 66 F		Jan 67 OCE
Bull Shoals	White Riv Basin	CE	LRD	Oct 66 F		Jan 67 OCE
Norfork	White Riv Basin	CE	LRD	Oct 66 F		Jan 67 OCE
		CE	LRD	Oct 66 F		Jan 67 OCE
Clearwater	Black River	CE	LRD	Jan 73 U	Oct 83 R	Feb 73 SWD R*
Greers Ferry	Little Red River	CE	LRD	Oct 65 F		Jun 66 OCE
Arkansas Master						
Pueblo (1)	Arkansas River	CE	AD	Apr 69 F		Jun 70 OCE
Trinidad	Purgatorie River	BR	AD	Dec 77 F		Feb 79 SWD
John Martin	Arkansas River	CE	AD	Jul 78 F		Oct 79 SWD
		CE	AD	Nov 82 U	Feb 83 R	Jan 83 SWD AR
Arkansas Master						
Cheney (1)	N. F. Ninnescah	CE	TD	Apr 76 U		Sep 80 SWD
El Dorado	Walnut River	BR	TD	Oct 65		Mar 66 OCE AR
Kaw	Arkansas River	CE	TD	Feb 81		Mar 82 SWD AR
Great Salt Plains	Salt Fork Ark	CE	TD	Dec 77 F		Jan 78 SWD
Keystone	Arkansas River	CE	TD	Nov 66 F		Apr 67 OCE
Heyburn	Polecat Creek	CE	TD	Nov 63	Sep 85 U	Apr 65 OCE
		CE	TD	Jan 57	Jan 84 R	Feb 62 OCE AR
Verdigris System						
Toronto	Verdigris River	CE	TD	Jun 66 F	Jan 85 U	Aug 66 OCE
Fall River	Fall River	CE	TD	Jun 66 F	Aug 85 U	Aug 66 OCE
Elk City	Elk River	CE	TD	Jun 66 F		Aug 66 OCE
Big Hill	Big Hill Creek	CE	TD	Aug 82		Sep 82 SWD AR
Oologah	Verdigris River	CE	TD	Dec 75 U		Jan 76 SWD AR
Hulah	Caney River	CE	TD	Oct 68		Jun 69 OCE AR
Copan	Caney River	CE	TD	Nov 82	Feb 83	Dec 82 SWD R
Birch	Bird Creek	CE	TD	Aug 81 F		Sep 81 SWD
Skiatook	Horning Creek	CE	TD		Aug 84	

STATUS OF WATER CONTROL MANUALS IN SWD
(Report Control Symbol DAEN-CWE-16) Revised: 1 January 1983

RESERVOIR	STREAM	OWNER	DIST	WATER CONTROL MANUAL SUBMITTED	SCHEDULED THRU FY 85	APPROVED
Upper Grand Sys						
Council Grove	Neosho River	CE	TD	Apr 74 F		May 74 SWD
Marion	Cottonwood River	CE	TD	Jul 74 F		Aug 74 SWD
John Redmond	Neosho River	CE	TD	Sep 76 R		
Pensacola (1)	Neosho River	GRDA	TD	Sep 64	Jul 84 R	Mar 65 OCE AR
Markham Ferry (1)	Neosho River	GRDA	TD	Sep 64	Dec 84 R	Mar 65 OCE AR
Fort Gibson	Neosho River	CE	TD	Sep 64	Jul 85 R	Mar 65 OCE AR
Tenkiller Ferry	Illinois River	CE	TD	Jul 76 F		Mar 77 SWD
Conchas	Canadian River	CE	AD	Jun 67 F		Jan 68 OCE
Sanford (1)	Canadian River	BR	TD	Sep 65	Sep 85 U	Feb 66 OCE AR
Norman (1)	Little River	BR	TD	Feb 65 F		Nov 65 OCE
Optima	N Canadian River	CE	TD	Dec 69		Feb 70 SWD AR
Fort Supply	Wolf Creek	CE	TD	Dec 69		Feb 70 SWD AR
Canton	N. Canadian River	CE	TD	Dec 69		Feb 70 SWD AR
Arcadia	Deep Fork River	CE	TD		Dec 84	
Eufaula	Canadian River	CE	TD	Sep 62 F		Nov 63 OCE
Newt Graham PT VI, L&D 18	Arkansas River	CE	TD	Apr 72 F		Jun 72 SWD
Chouteau PT V, L&D 17	Arkansas River	CE	TD	Apr 72 F		Jun 72 SWD
Webbers Falls PT IV, L&D 16	Arkansas River	CE	TD	Jul 72 F		Jul 72 SWD
R. S. Kerr PT III, L&D 15	Arkansas River	CE	TD	Apr 72 F		Apr 72 SWD
W. D. Mayo PT II, L&D 14	Arkansas River	CE	TD	Oct 72		Jan 73 SWD AR
Wister	Poteau River	CE	TD	Mar 74 F		Jun 74 SWD
Blue Mountain	Petit Jean	CE	LRD	Feb 68 F	Oct 84 R	Mar 68 OCE
Nimrod	Fourche La Fave	CE	LRD	Sep 67 F		Mar 68 OCE
Lock & Dam 13	Arkansas River	CE	LRD	Sep 74 F		Sep 74 SWD
Ozark-Jeta Taylor	Arkansas River	CE	LRD	Sep 74 F		Sep 74 SWD
Dardanelle	Arkansas River	CE	LRD	Mar 76 F		Apr 76 SWD
Lock & Dam 9	Arkansas River	CE	LRD	Mar 76 F		Apr 76 SWD
Lock & Dam 8 Toad Suck Ferry	Arkansas River	CE	LRD	Jul 74 F		Sep 74 SWD
Lock & Dam 7 Murray	Arkansas River	CE	LRD	Jul 74 F		Sep 74 SWD
Lock & Dam 6 David D. Terry	Arkansas River	CE	LRD	Oct 71 F	Sep 85 R	Sep 74 SWD

STATUS OF WATER CONTROL MANUALS IN SWD
(Report Control Symbol DAEN-CWE-16 Revised: 1 January 1983

RESERVOIR	STREAM	OWNER	DIST	WATER CONTROL MANUAL SUBMITTED	SCHEDULED THRU FY 85	APPROVED
Lock & Dam 5	Arkansas River	CE	LRD	Oct 71 F	Sep 85	Sep 74 SWD
Lock & Dam 4	Arkansas River	CE	LRD	Oct 71 F	Sep 85	Sep 74 SWD
Lock & Dam 3	Arkansas River	CE	LRD	Oct 71 F	Sep 85	Sep 74 SWD
Lock & Dam 2 and Arkansas Post Channel	Arkansas River	CE	LRD	Oct 71 F	Sep 85	Sep 74 SWD
Red River Master		CE	TD	Nov 62		Feb 63 OCE AR
Altus (1)	N. Fork Red	BR	TD	Dec 67 F		Oct 68 OCE
Mountain Park (1)	Otter Creek	BR	TD	Jan 76	Jun 84 R	Mar 76 SWD R*
Lake Kemp (1)	Wichita River	WCID	TD	May 73		Jun 73 SWD
Waurika	Beaver Creek	CE	TD	Apr 77 F		Apr 77 SWD
Foss (1)	Wachita River	BR	TD	Feb 61 F		May 61 OCE
Fort Cobb (1)	Cobb Creek	BR	TD	Jan 60 F		Mar 61 OCE
Arbuckle (1)	Rock Creek	BR	TD	Nov 66		Sep 67 OCE AR
Texoma	Red River	CE	TD	Jun 75		Nov 75 SWD R*
Pat Mayse	Sanders Creek	CE	TD	Dec 66 F		Oct 67 OCE
Sardis (formerly (Clayton)	Jackfork Creek	CE	TD		Aug 83	
McGee Creek (1)	Muddy Boggy Creek	BR	TD		Oct 84	
Hugo	Kiamichi River	CE	TD	May 82		Jul 82 SWD AR
Little Riv Sys						
Pine Creek	Little River	CE	TD	May 74 R		Jul 74 SWD AR
Broken Bow	Mountain Fork	CE	TD	Jul 74 R		Nov 74 SWD
DeQueen	Rolling Fork	CE	LRD	May 76 F		Jun 76 SWD R
Gillham	Cossatot River	CE	LRD	Mar 67	Sep 83 R	Apr 81 SWD R*
Dierks	Saline River	CE	LRD	Jun 75		Apr 76 SWD
Millwood	Little River	CE	TD	Sep 73 F		Nov 73 SWD
Sulphur Riv Master						
Cooper	Sulphur River	CE	FWD			
Wright Patman	Sulphur River	CE	FWD	Sep 74 U	Dec 82 R	Nov 74 LMVD
Lake O' The Pines	Cypress Creek	CE	FWD	Jun 74 U	Dec 83 R	Nov 74 LMVD
Neches Riv Master		CE	FWD	May 62	Apr 85 R	Mar 63 OCE AR
B. A. Steinhagen	Neches River	CE	FWD	Jul 51	Aug 84 R	Feb 63 OCE AR
Sam Rayburn	Angelina River	CE	FWD	Jan 73 R	Nov 82 R	Feb 73 SWD AR
Trinity Riv Master		CE	FWD	May 75 P		May 75 SWD
Benbrook	Clear Fork	CE	FWD	May 75 P	Sep 83	May 75 SWD
Lakeview	Mountain Creek	CE	FWD		Jun 84	
Lewisville	Elm Fork	CE	FWD	May 75 P	Jun 84	May 75 SWD

STATUS OF WATER CONTROL MANUALS IN SWD
(Report Control Symbol DAEN-CWE-16) Revised: 1 January 1983

RESERVOIR	STREAM	OWNER	DIST	WATER CONTROL MANUAL SUBMITTED	SCHEDULED THRU FY 85	APPROVED
Grapevine	Denton Creek	CE	FWD	May 75 P	Aug 83	May 75 SWD
Lavon	East Fork	CE	FWD	May 75 P		May 75 SWD
Navarro Mills	Richland Creek	CE	FWD	May 63		Jul 64 OCE AR
Bardwell	Waxahachie Creek	CE	FWD	Aug 63		Jul 65 OCE AR
Wallisville	Trinity River	CE	GD	(Work on project stopped)		
Buffalo Bayou Master		CE	GD			
Barker	Buffalo Bayou	CE	GD	May 63 F		Oct 72 SWD R
Addicks	Buffalo Bayou	CE	GD	May 63 F		Oct 72 SWD R
Brazos Riv Master		CE	FWD	Jan 73		Mar 73 SWD R*
Whitney	Brazos River	CE	FWD	Jan 74 F	Jul 85 U	Apr 75 SWD
Aquilla	Aquilla Creek	CE	FWD		Apr 84	
Proctor	Leon River	CE	FWD	Feb 74 F		Apr 74 SWD
Belton	Leon River	CE	FWD	Apr 76 F	Jul 85 U	May 76 SWD
Stillhouse Hollow	Lampasas River	CE	FWD	May 76 F		Jul 76 SWD
Georgetown	N. F. San Gabriel	CE	FWD	Dec 79 P	Nov 82	Jun 80 SWD R
Granger	San Gabriel	CE	FWD	Oct 82	Oct 82	Nov 82 SWD R
Waco	Bosque River	CE	FWD	Jul 73 F		Aug 73 SWD
Somerville	Yegua Creek	CE	FWD	Oct 73 F		Nov 73 SWD
Colorado Riv Master		CE	FWD			
Hords Creek	Hords Creek	CE	FWD	Sep 55	Apr 85 R	May 62 OCE AR
O. C. Fisher	N. Concho	CE	FWD	Jan 56	Jun 85 R	Dec 62 OCE AR
Twin Buttes (1)	S. Concho	BR	FWD	Jan 66 P	Dec 83	Sep 66 FR
Marshall Ford (1)	Colorado River	BR	FWD	Dec 79		May 80 SWD R/FR
Guadalupe Riv Master		CE	FWD	Oct 63		Jan 66 OCE AR
Canyon	Guadalupe River	CE	FWD	Mar 73 F		May 73 SWD
Rio Grande Master		CE	AD	Aug 66 F		Feb 67 OCE
Abiquiu	Rio Chama	CE	AD	Apr 82 U		Jun 82 SWD
Galisteo	Galisteo Creek	CE	AD	Mar 68 F		Apr 68 OCE
Cochiti	Rio Grande	CE	AD	Aug 78		Jun 81 SWD

STATUS OF WATER CONTROL MANUALS IN SWD
(Report Control Symbol DAEN-CWE-16) Revised: 1 January 1983

RESERVOIR	STREAM	OWNER	DIST	WATER CONTROL MANUAL SUBMITTED	SCHEDULED THRU FY 85	APPROVED
Jemez Canyon	Jemez River	CE	AD	Aug 66 F	Mar 83 U	Feb 67 OCE
Platoro (1)	Conjos River	BR	AD	Apr 64 F		May 64 OCE
Pecos Riv Master		CE	AD	Nov 77		Nov 77 SWD AR
Santa Rosa	Pecos River	CE	AD	Dec 79		Sep 81 SWD
Sumner (1)	Pecos River	BR	AD	Mar 82	Sep 83	May 82 SWD R
Two Rivers	Rio Hondo	CE	AD	Jun 62 F		Jun 64 OCE

Note:
(1) = Section 7 project, flood control regulation by CE.
AR = Approved, comments to be answered.
F = Complete, comments have been answered and approved.
FR = Published in Federal Register.
P = Plan.
R = Revision or answer to comments.
R* = Returned without approval.
U = Update of existing approved manual.
GRDA = Grand River Dam Authority.
WCID = Wichita County Water Improvement District.
LCRA = Lower Colorado River Authority.
BR = Bureau of Reclamation.

SECTION V - REGULATION OF MULTI-PURPOSE PROJECTS WITH HYDROPOWER

SECTION V

HYDROPOWER GENERATION AT SOUTHWESTERN DIVISION PROJECTS

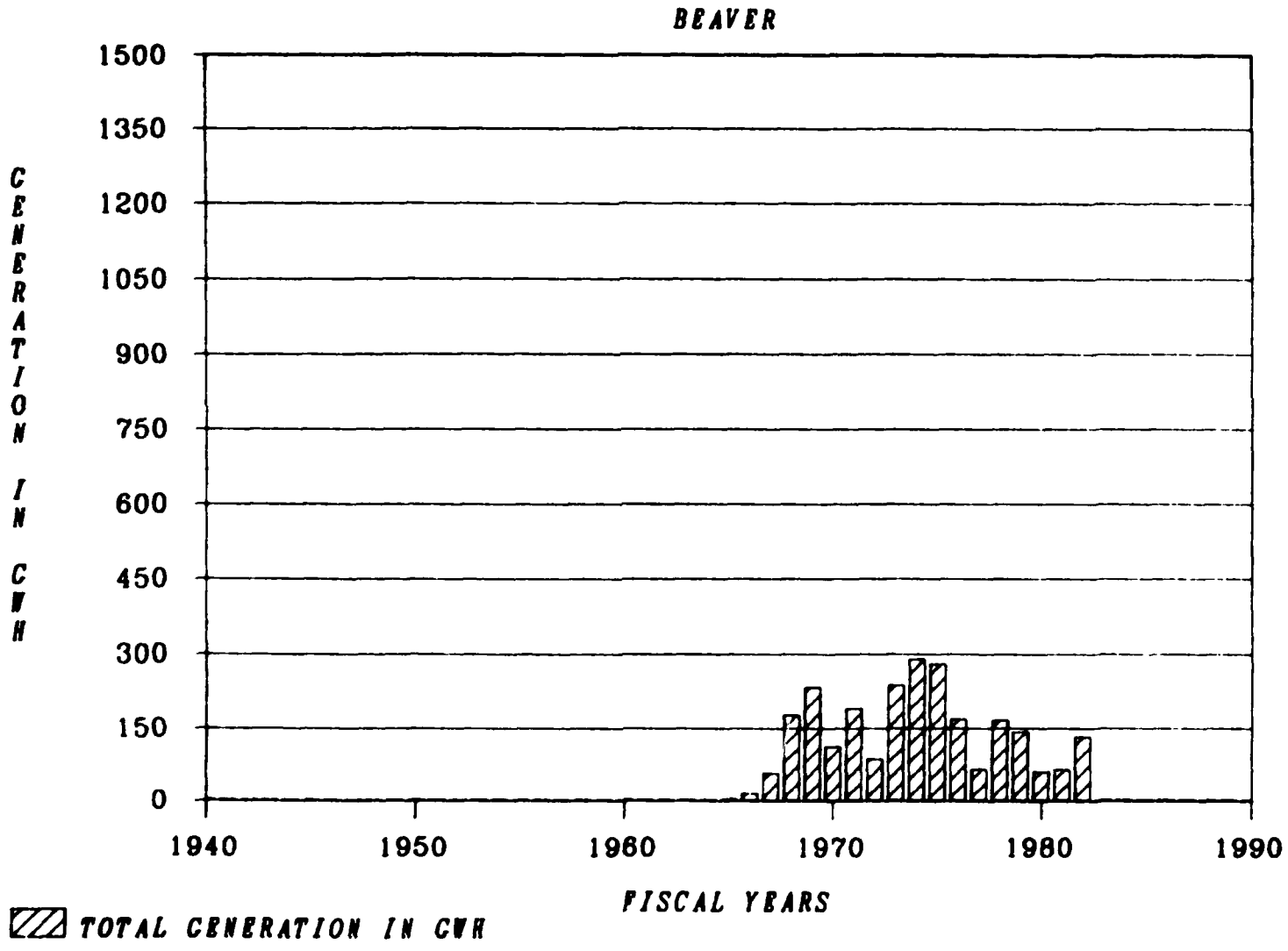
The 17 hydropower projects are listed in table 1. Generation by project for the last five years is shown in table 2. Generation by the projects, since impoundment, is shown on the graphs following table 2 in the order in which they are listed.

TABLE 1

Project	Basin	Stream	No. Units	Total Capacity MW	Plate No.
Beaver	White	White	2	112	1
Table Rock	White	White	4	200	2
Bull Shoals	White	White	8	340	3
Norfork	White	North Fork	2	70	4
Geers Ferry	White	Little Red	2	96	5
Keystone	Arkansas	Arkansas	2	70	6
Ft. Gibson	Arkansas	Grand	4	45	7
Webbers Falls	Arkansas	Arkansas	3	60	8
Tenkiller Ferry	Arkansas	Illinois	2	34	9
Eufaula	Arkansas	S. Canadian	3	90	10
R.S. Kerr	Arkansas	Arkansas	4	110	11
Ozark-Jeta Taylor	Arkansas	Arkansas	5	100	12
Dardanelle	Arkansas	Arkansas	4	124	13
Denison	Red	Red	2	70	14
Broken Bow	Red	Mountain Fork	2	100	15
Sam Rayburn	Neches	Angelina	2	52	16
Whitney	Brazos	Brazos	2	30	17

TABLE 2

Project	1978	1979	1980	1981	1982
Beaver	166.3	141.6	60.1	64.6	132.3
Table Rock	554.6	577.5	314.3	95.6	386.4
Bull Shoals	709.3	887.9	472.8	191.0	406.6
Norfork	190.3	279.0	167.8	57.3	118.1
Greers Ferry	220.5	369.6	137.6	63.1	135.9
Keystone	210.0	221.0	297.0	80.0	277.0
Ft. Gibson	260.0	213.0	156.0	71.0	240.0
Webbers Falls	223.0	230.0	186.0	--	--
Tenkiller Ferry	99.0	77.0	48.0	37.0	11.0
Eufaula	152.0	162.0	138.0	48.0	354.0
R.S. Kerr	588.0	488.0	482.0	170.0	614.0
Ozark	345.3	236.9	322.7	67.4	0.1
Dardanelle	695.7	644.0	591.1	286.5	707.7
Denison	142.0	158.0	123.0	148.0	304.0
Broken Bow	87.0	207.0	122.0	132.0	163.0
Sam Rayburn	34.6	181.0	149.4	40.9	58.7
Whitney	18.5	64.8	24.8	50.6	105.1


BEAVER
1500
1350
1200
1050
900
750
600
450
300
150
0
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1940
1950
1960
1970
1980
1990
FISCAL YEARS
TOTAL GENERATION IN GWH

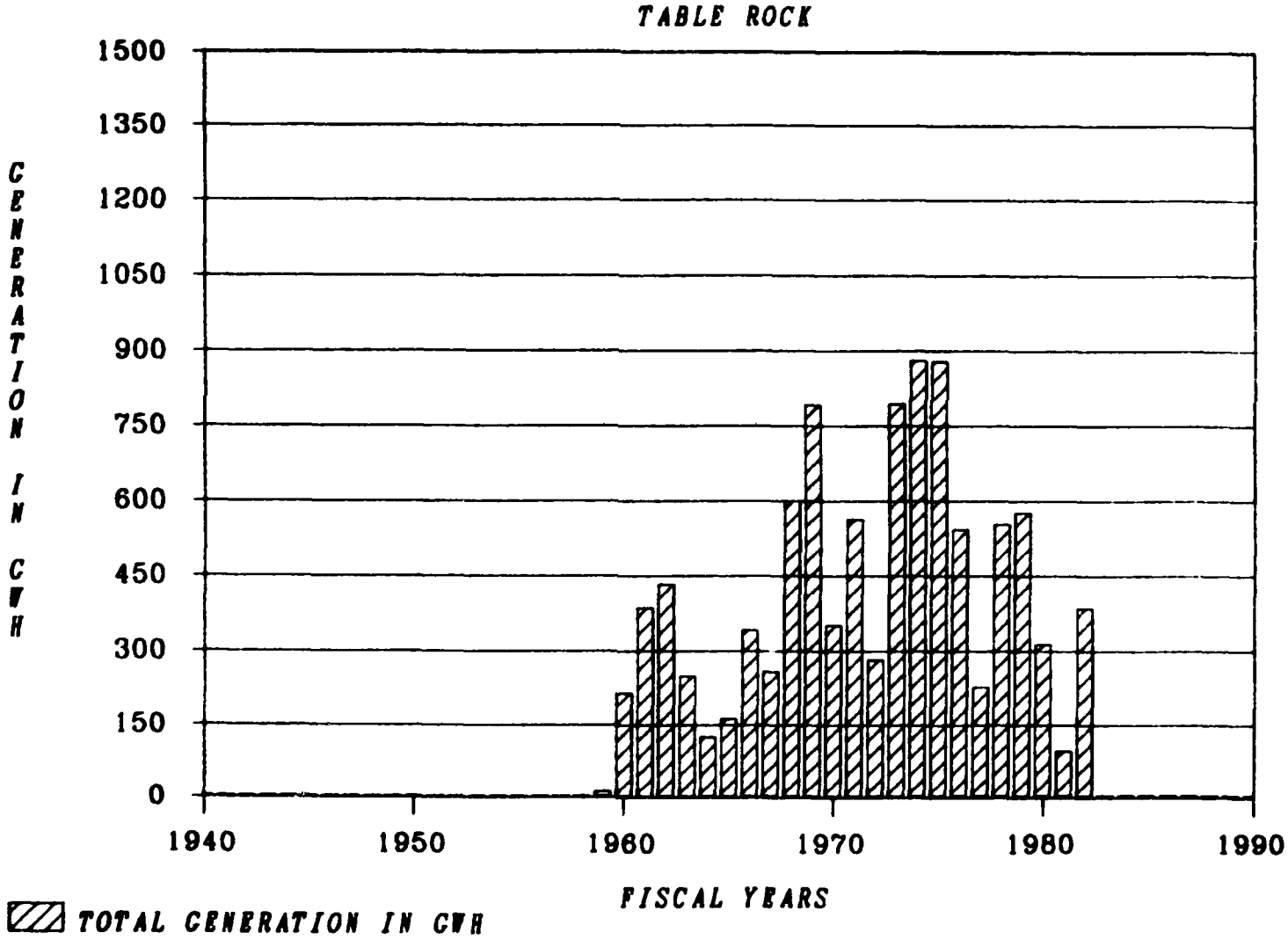
TABLE ROCK
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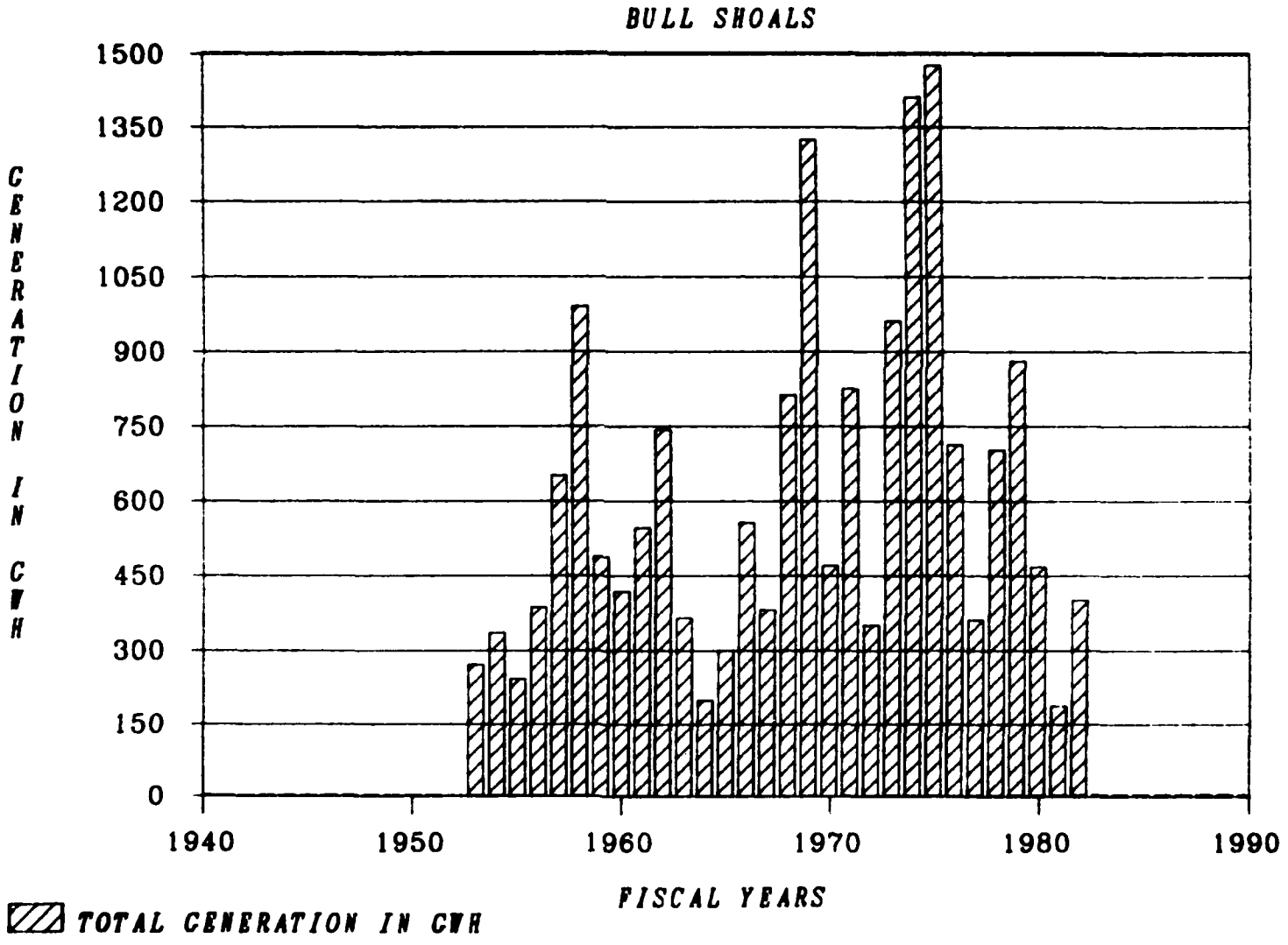
1980
1990
FISCAL YEARS
TOTAL GENERATION IN GWH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150
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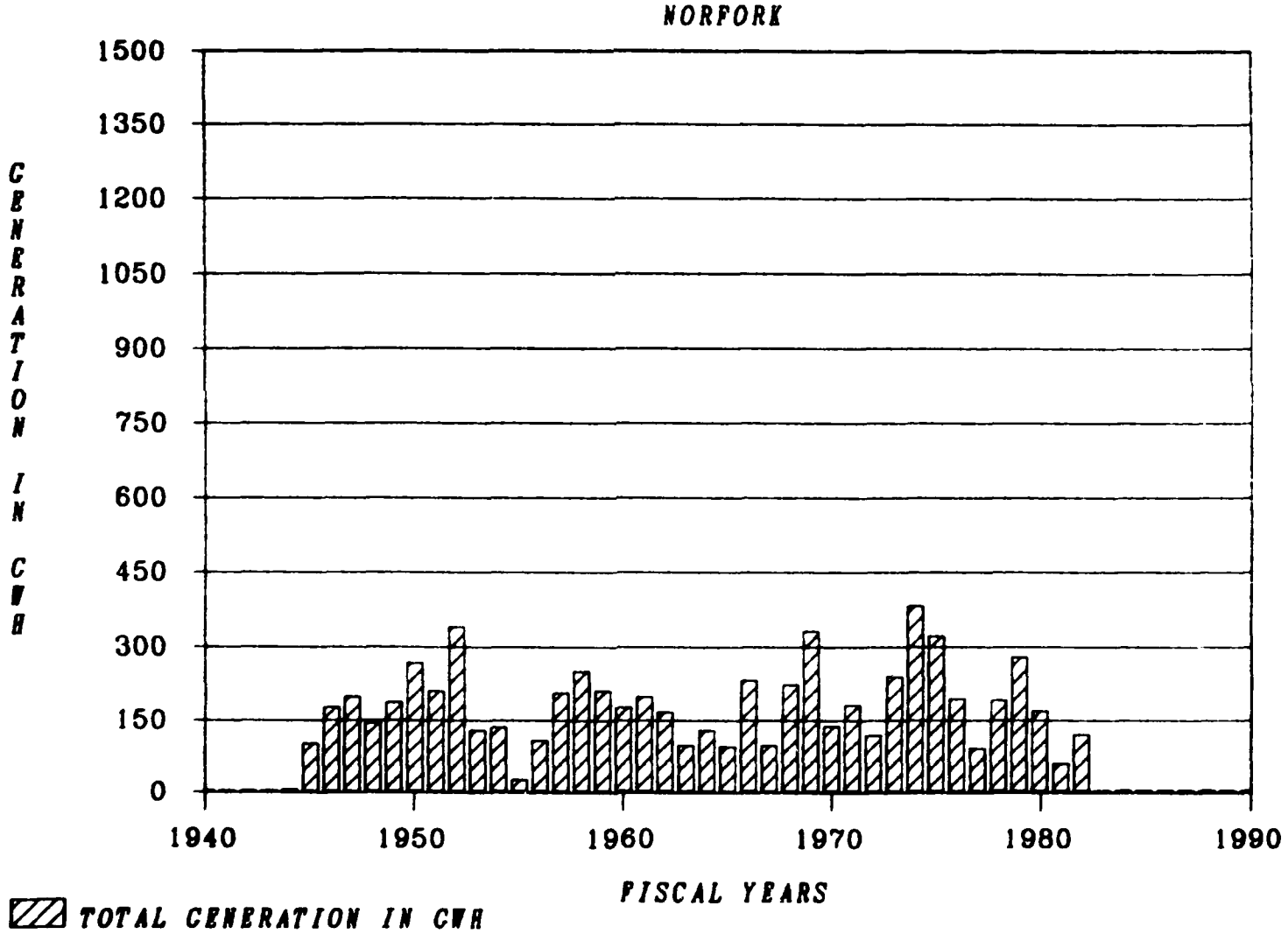
1950
1960
1970
1980
1990
FISCAL YEARS
TOTAL GENERATION IN GWH


NORFORK
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1200
1050
900
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150
0
CENERATION IN CWH
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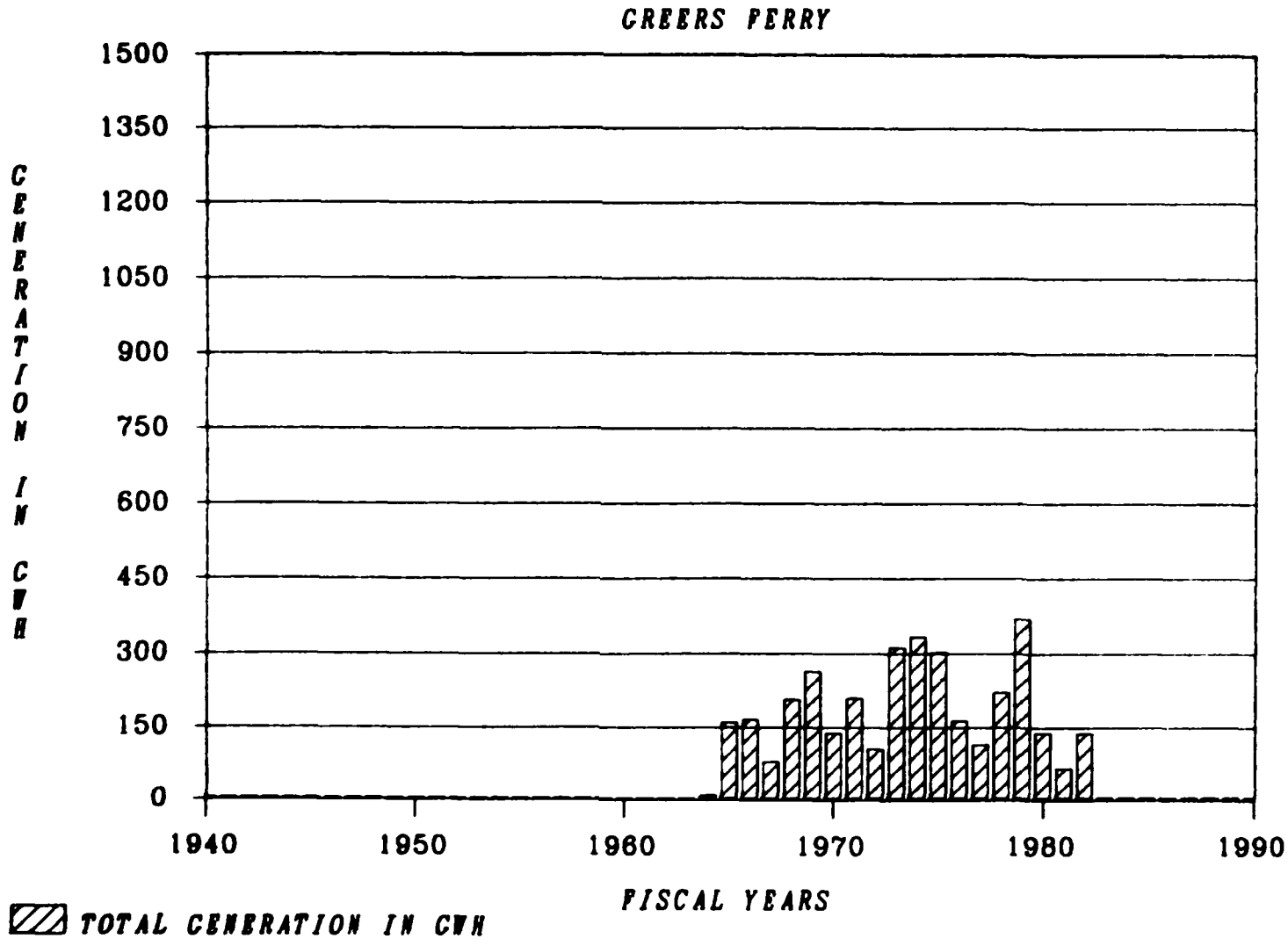
1950
1960
1970
1980
1990
FISCAL YEARS
TOTAL CENERATION IN CWH


CREERS FERRY
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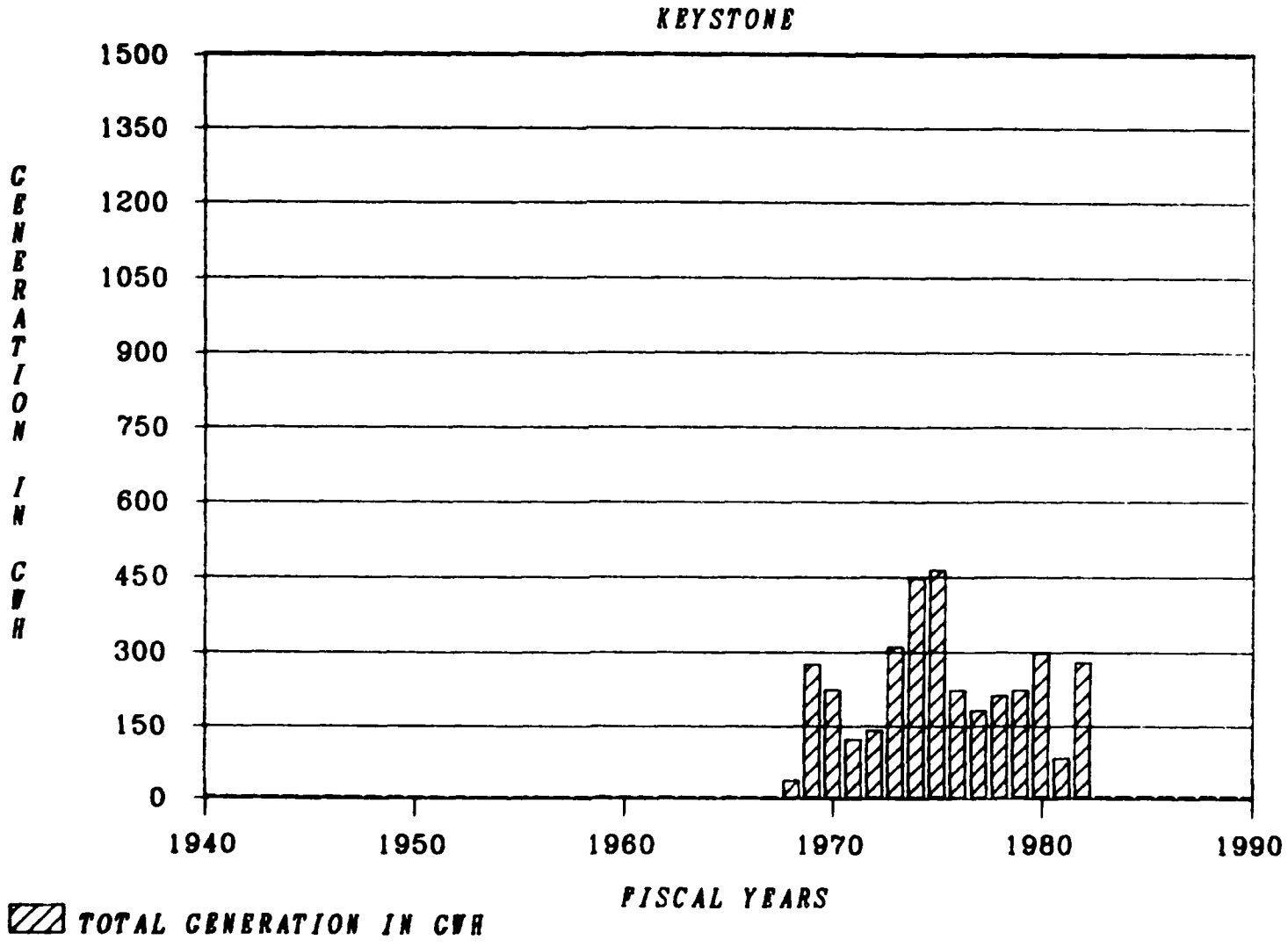
1350
1200
1050
900
750
600
450
300
150
0
GENERATION IN GWH
1940
1950
1960
1970
1980
1990
FISCAL YEARS
TOTAL GENERATION IN GWH


KEYSTONE
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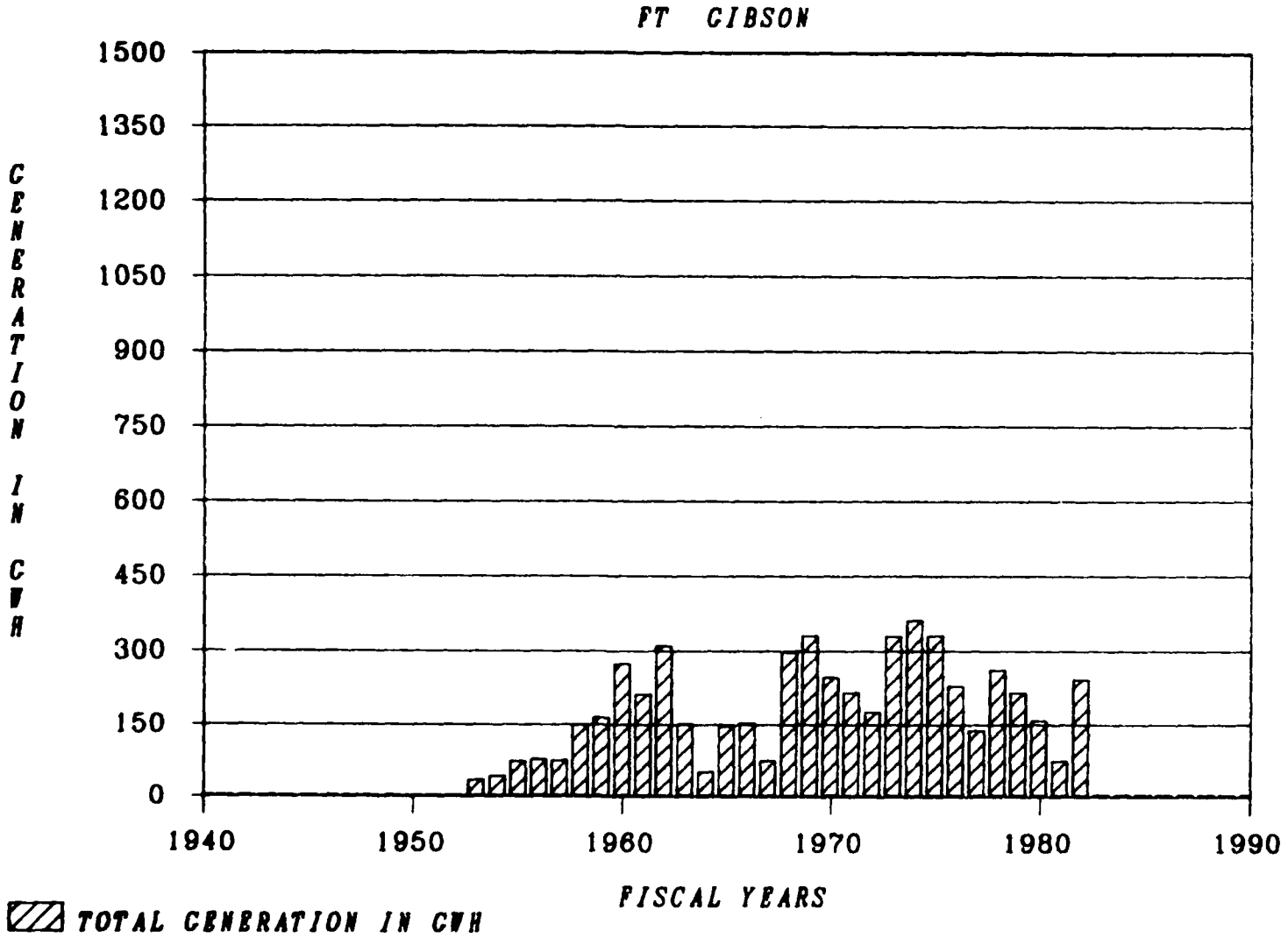
1350
1200
1050
900
750
600
450
300
150
0
GENERATION IN GWH
1940
1950
1960
1970
1980
1990
FISCAL YEARS
TOTAL GENERATION IN GWH


FT GIBSON
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1350
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1050
900
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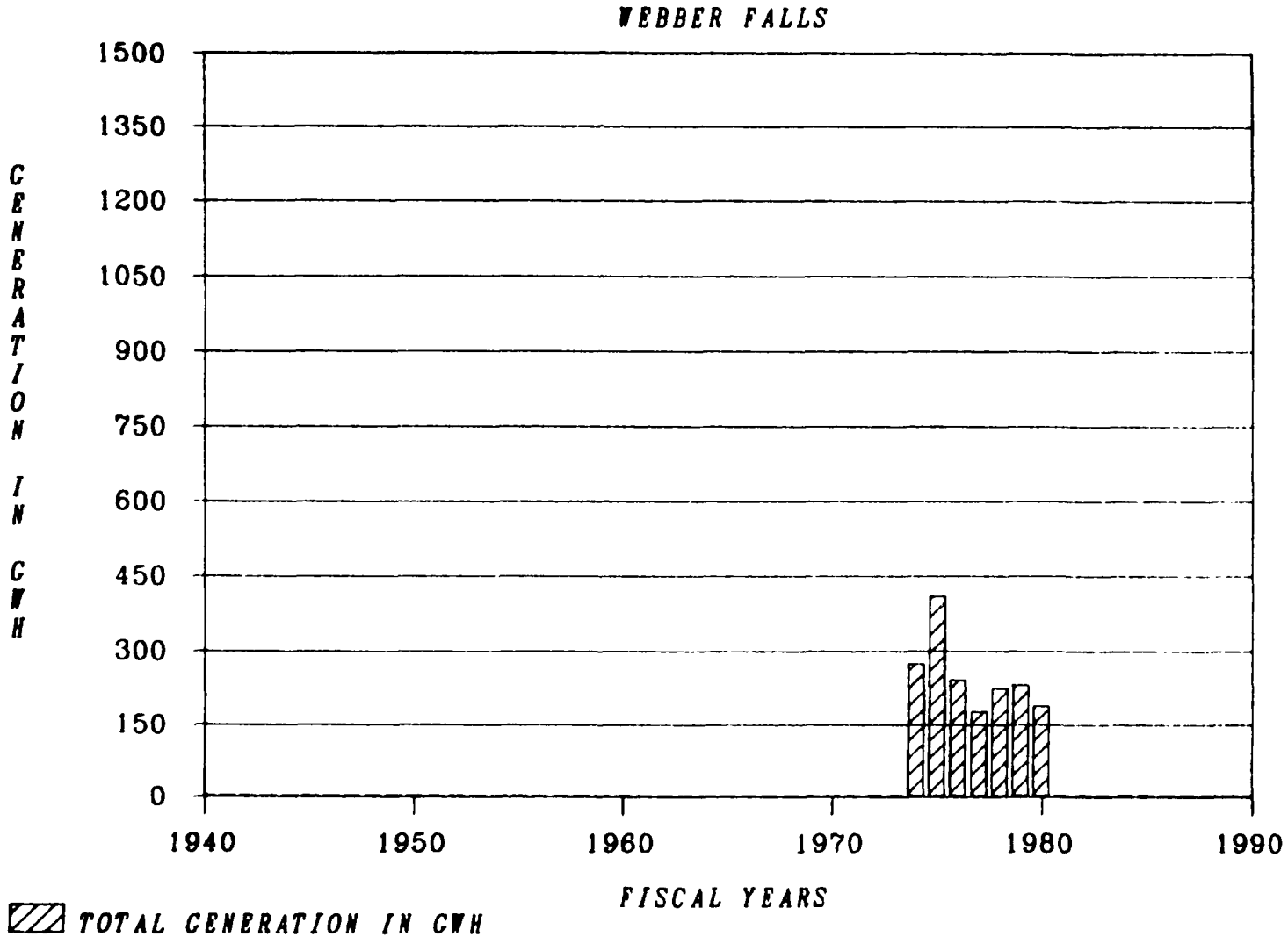
150
0
GENERATION IN GWH
1940
1950
1960
1970
1980
1990
FISCAL YEARS
TOTAL GENERATION IN GWH


WEBBER FALLS
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1350
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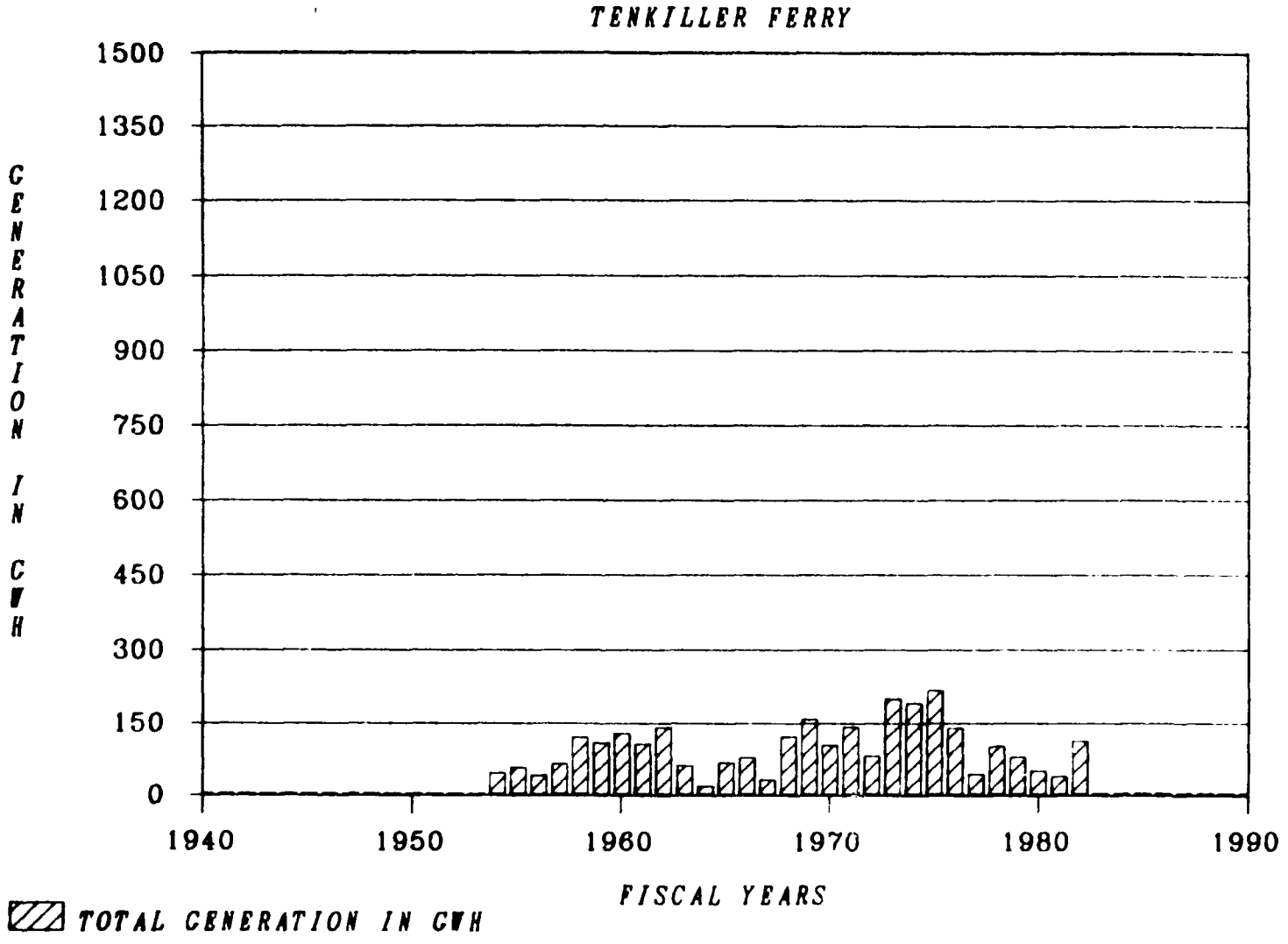
1050
900
750
600
450
300
150
0
GENERATION IN GWH
1940
1950
1960
1970
1980
1990
FISCAL YEARS
TOTAL GENERATION IN GWH


TENKILLER FERRY
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1350
1200
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900
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0
GENERATION IN GWH
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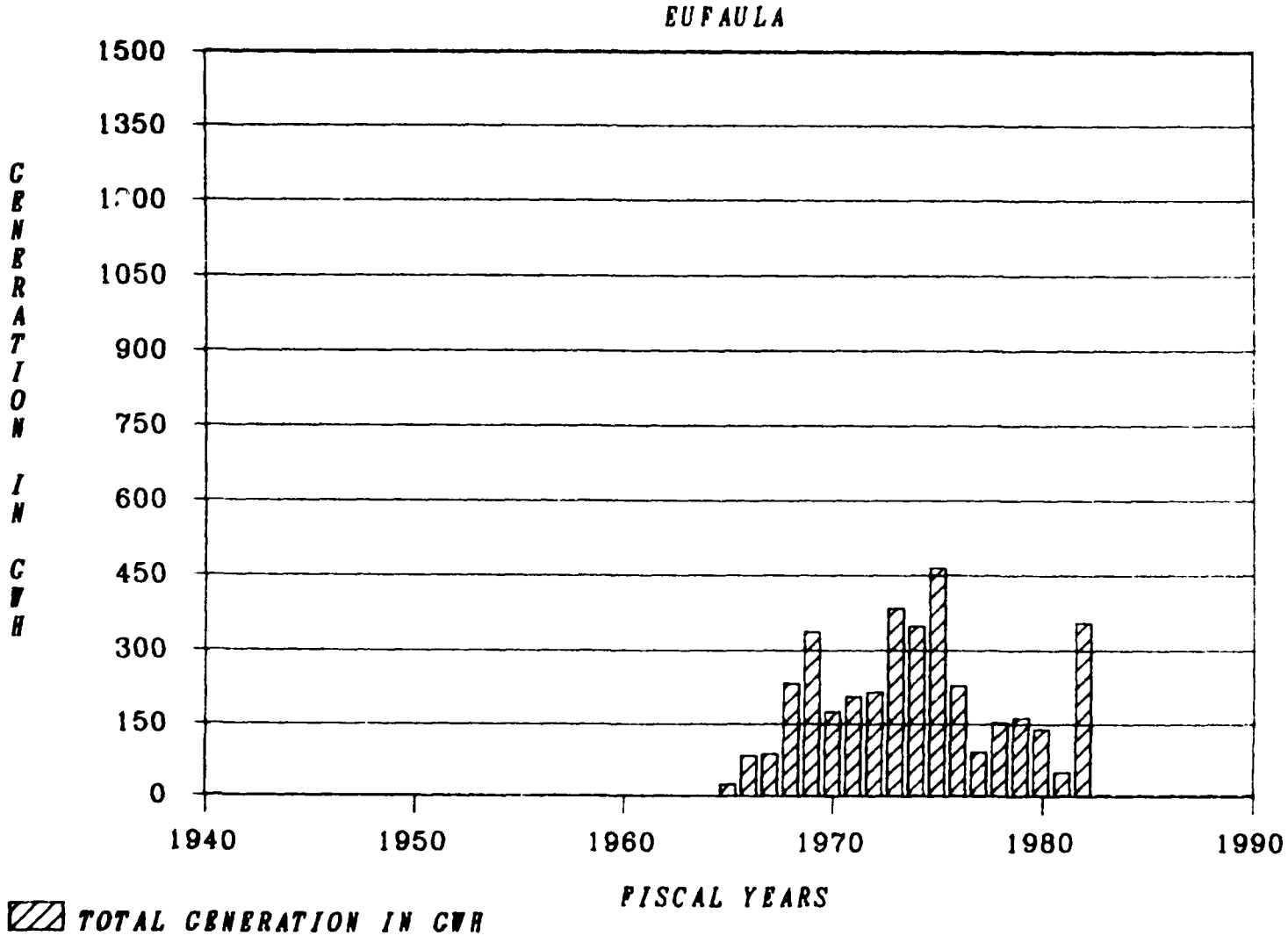
1950
1960
1970
1980
1990
FISCAL YEARS
TOTAL GENERATION IN GWH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1050
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150
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GENERATION IN GWH
1940
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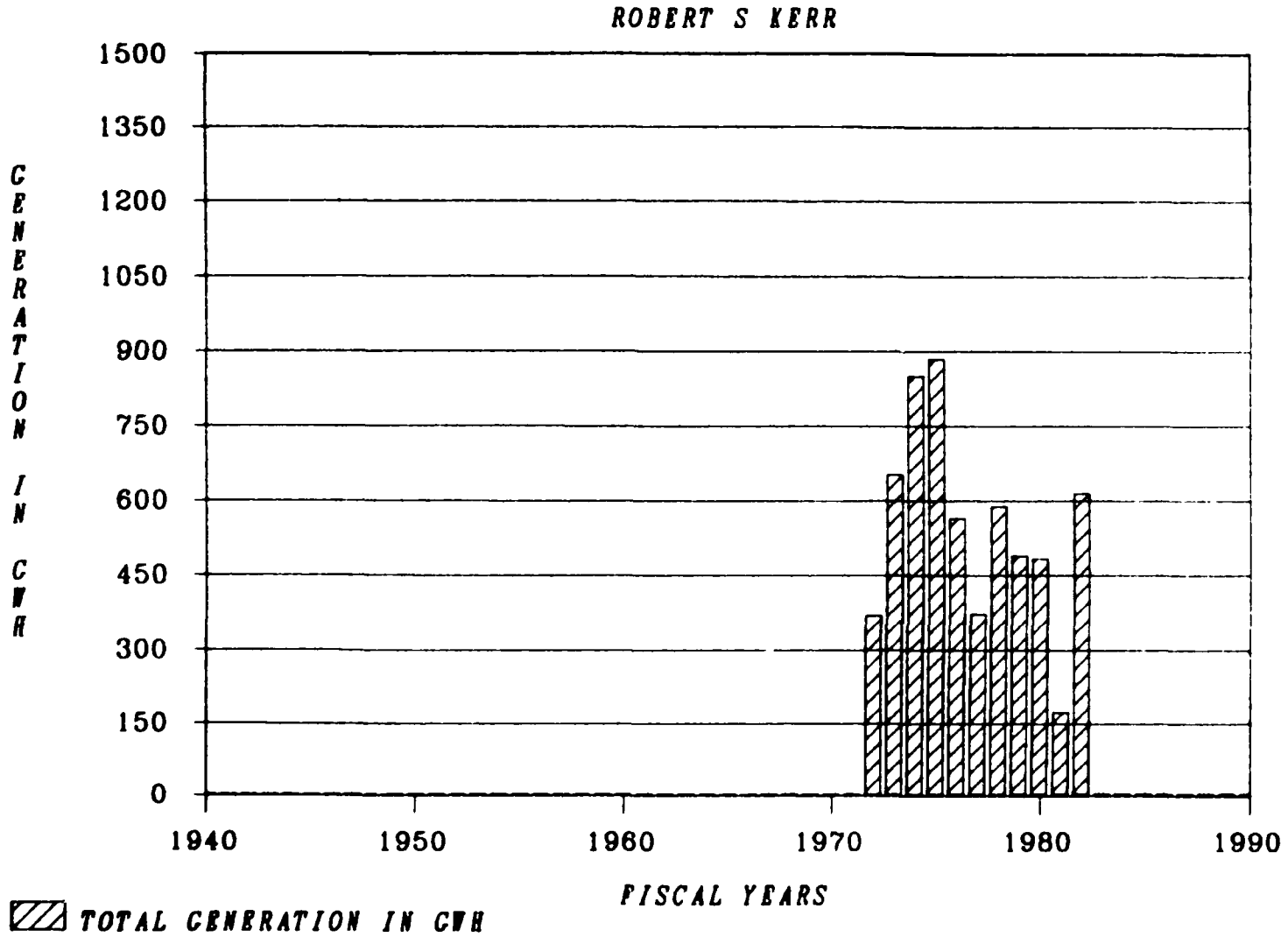
1990
FISCAL YEARS
TOTAL GENERATION IN GWH


ROBERT S KERR
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1350
1200
1050
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0
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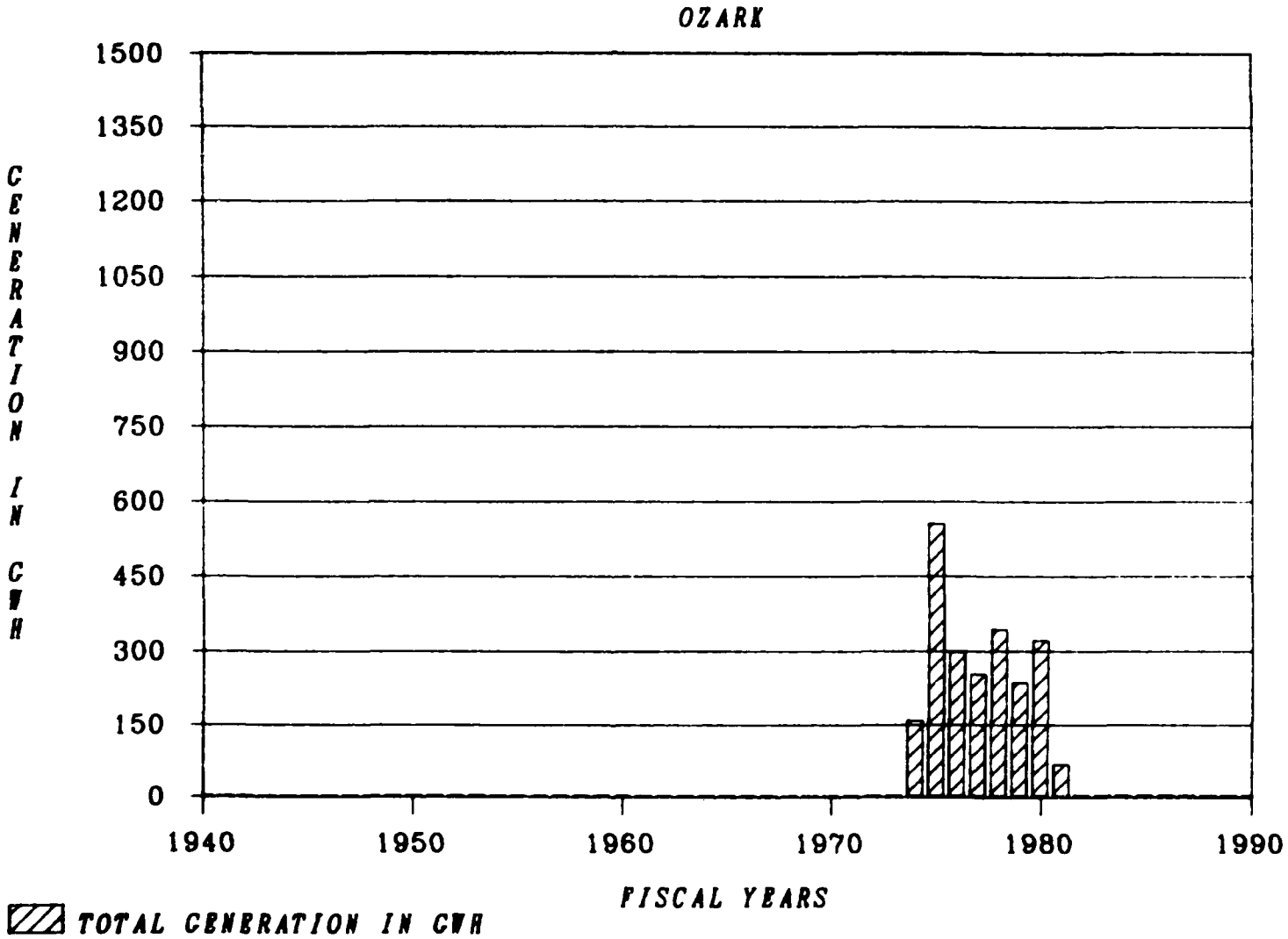
1990
FISCAL YEARS
TOTAL GENERATION IN GWH


OZARK
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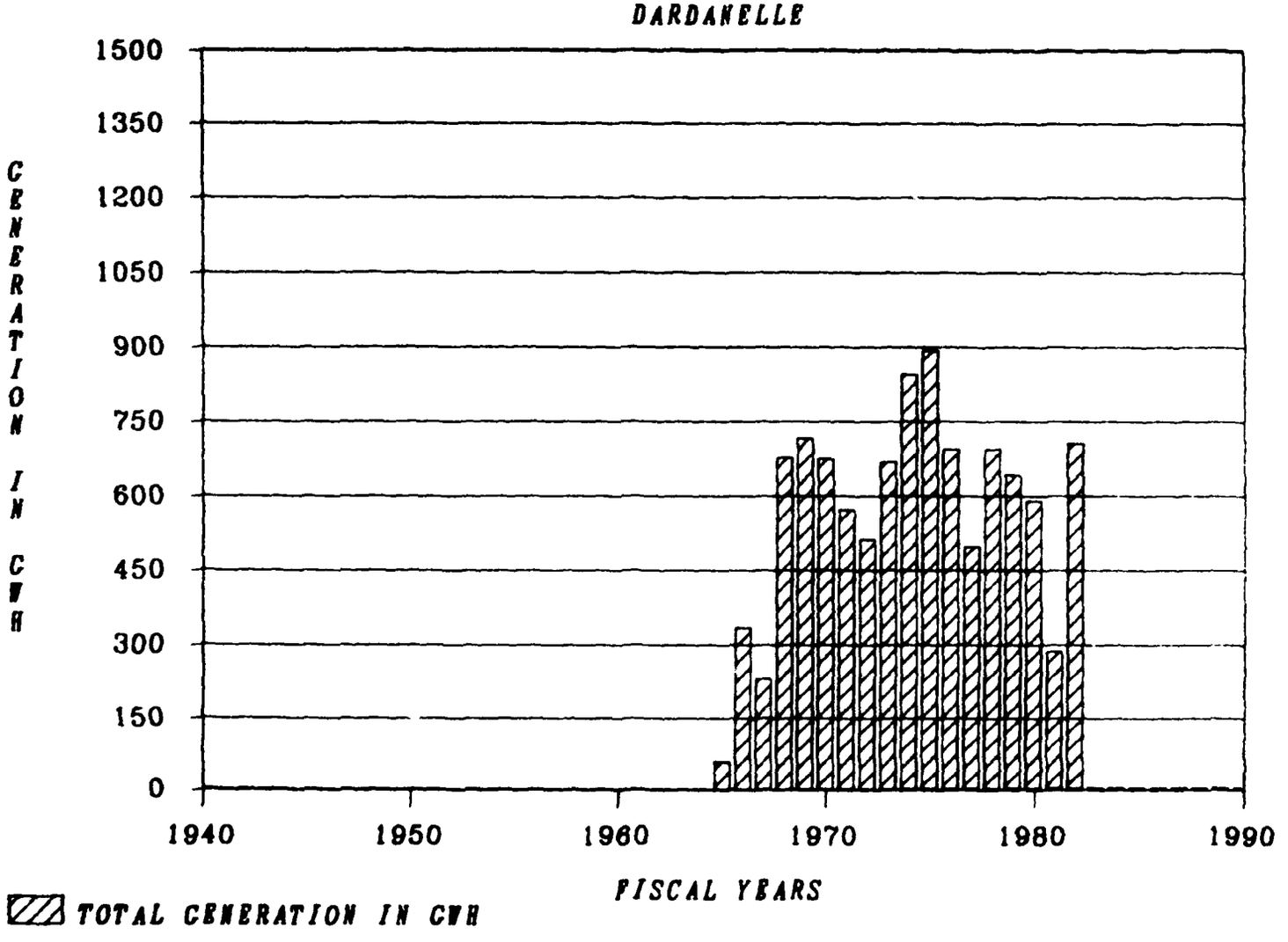
1990
FISCAL YEARS
TOTAL GENERATION IN GWH


DARDANELLE
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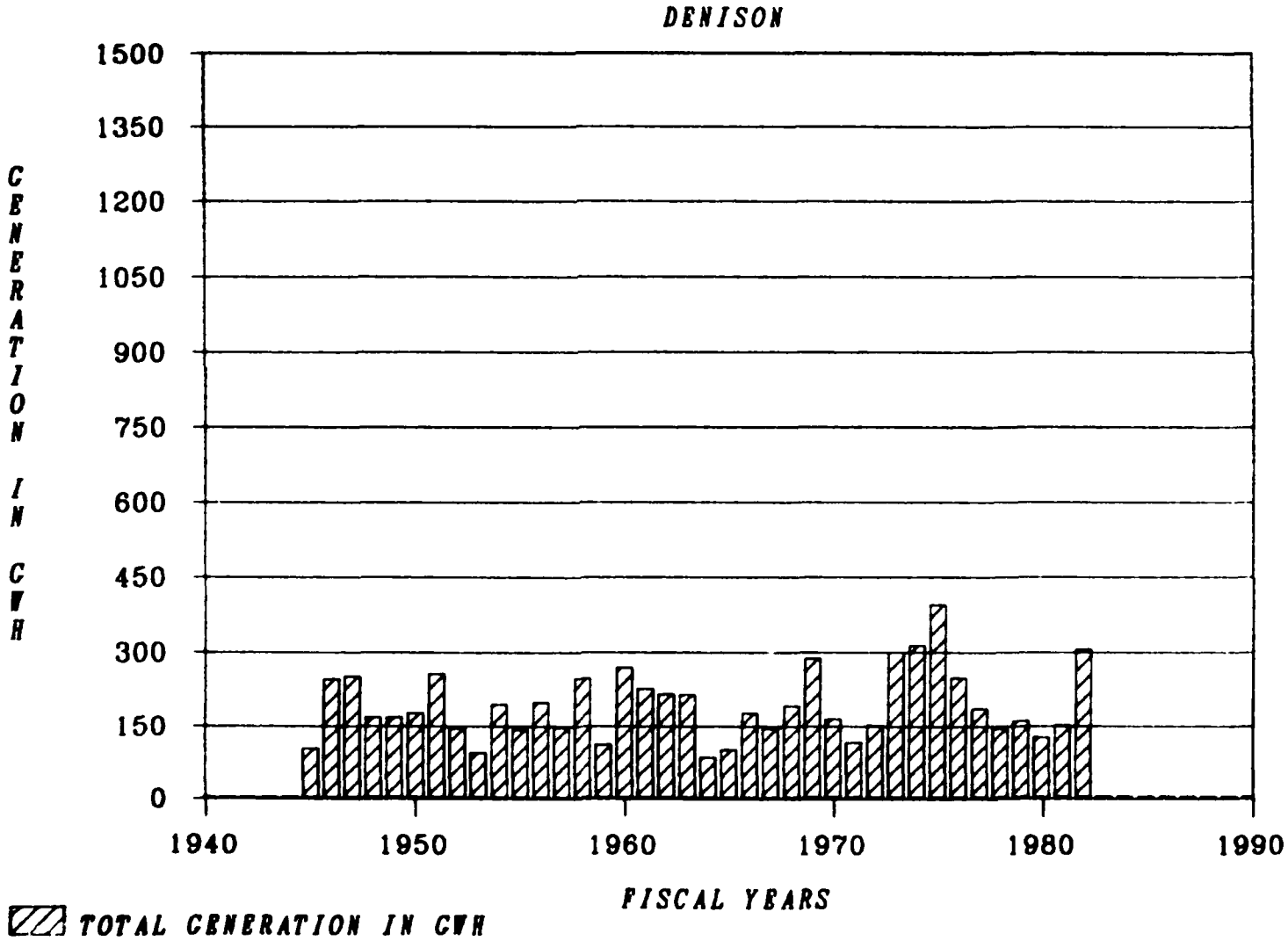
FISCAL YEARS
TOTAL GENERATION IN GWH


DENISON
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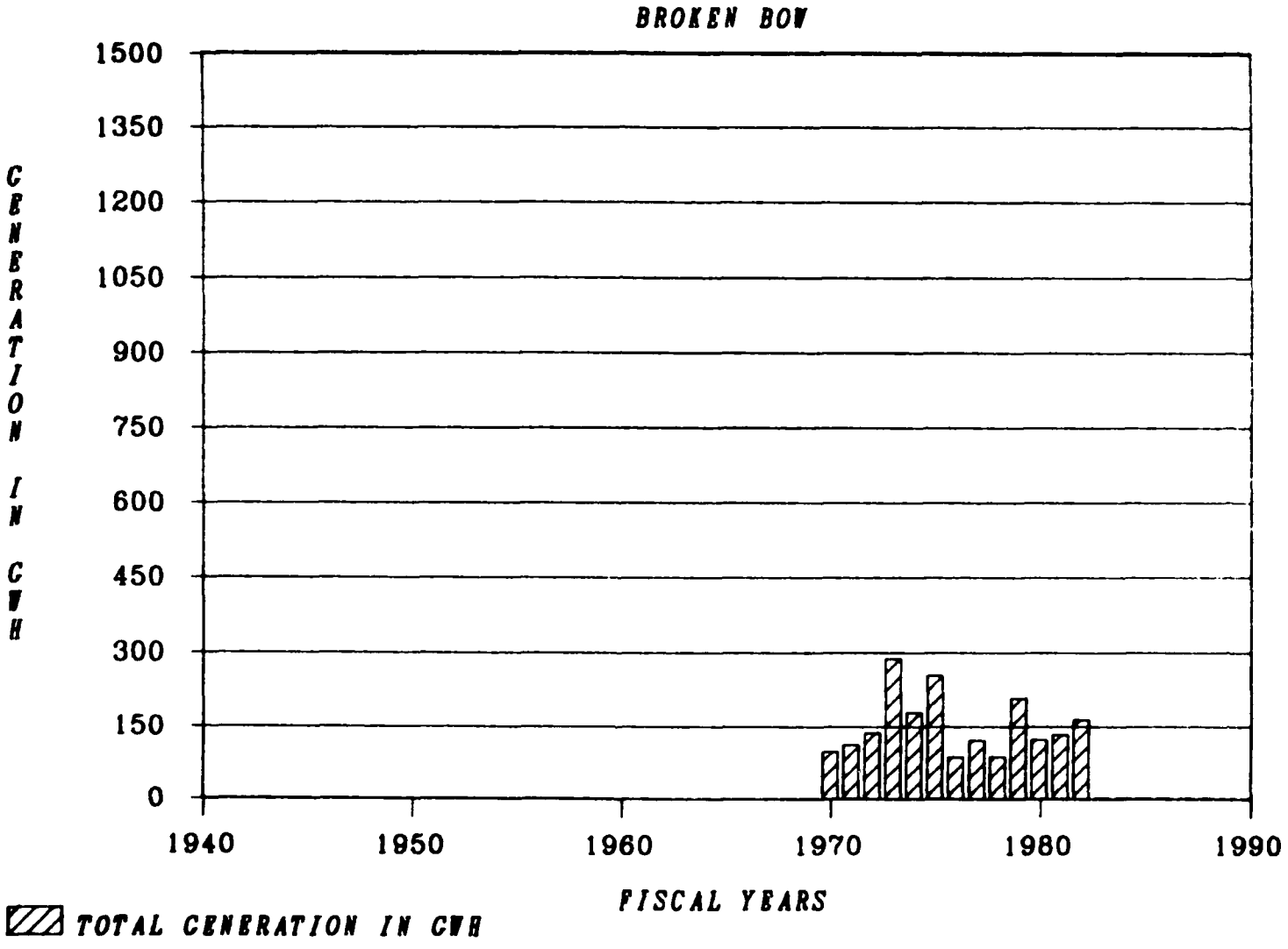
FISCAL YEARS
TOTAL GENERATION IN GWH


BROKEN BOW
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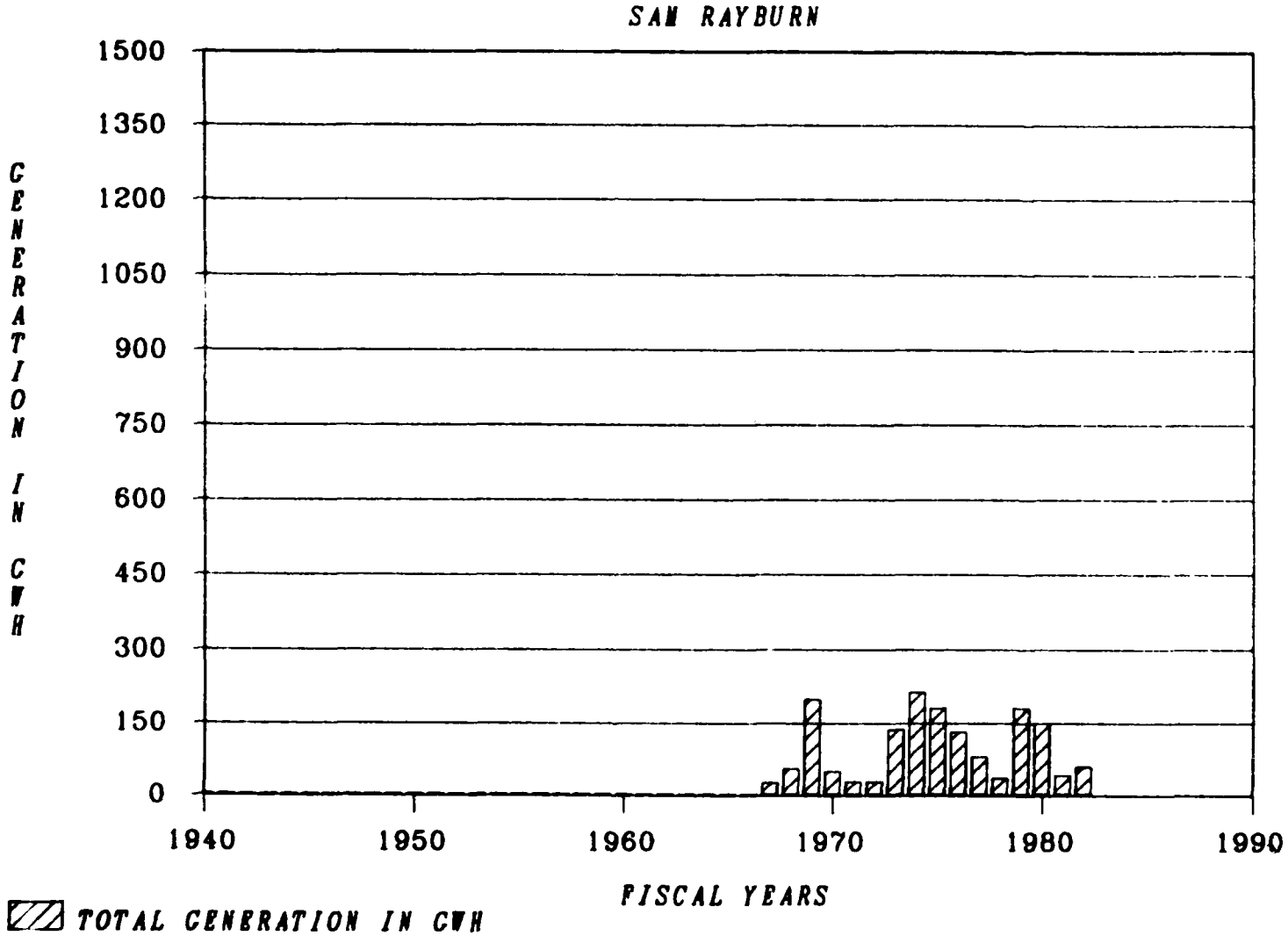
FISCAL YEARS
TOTAL GENERATION IN GWH


SAM RAYBURN
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1940
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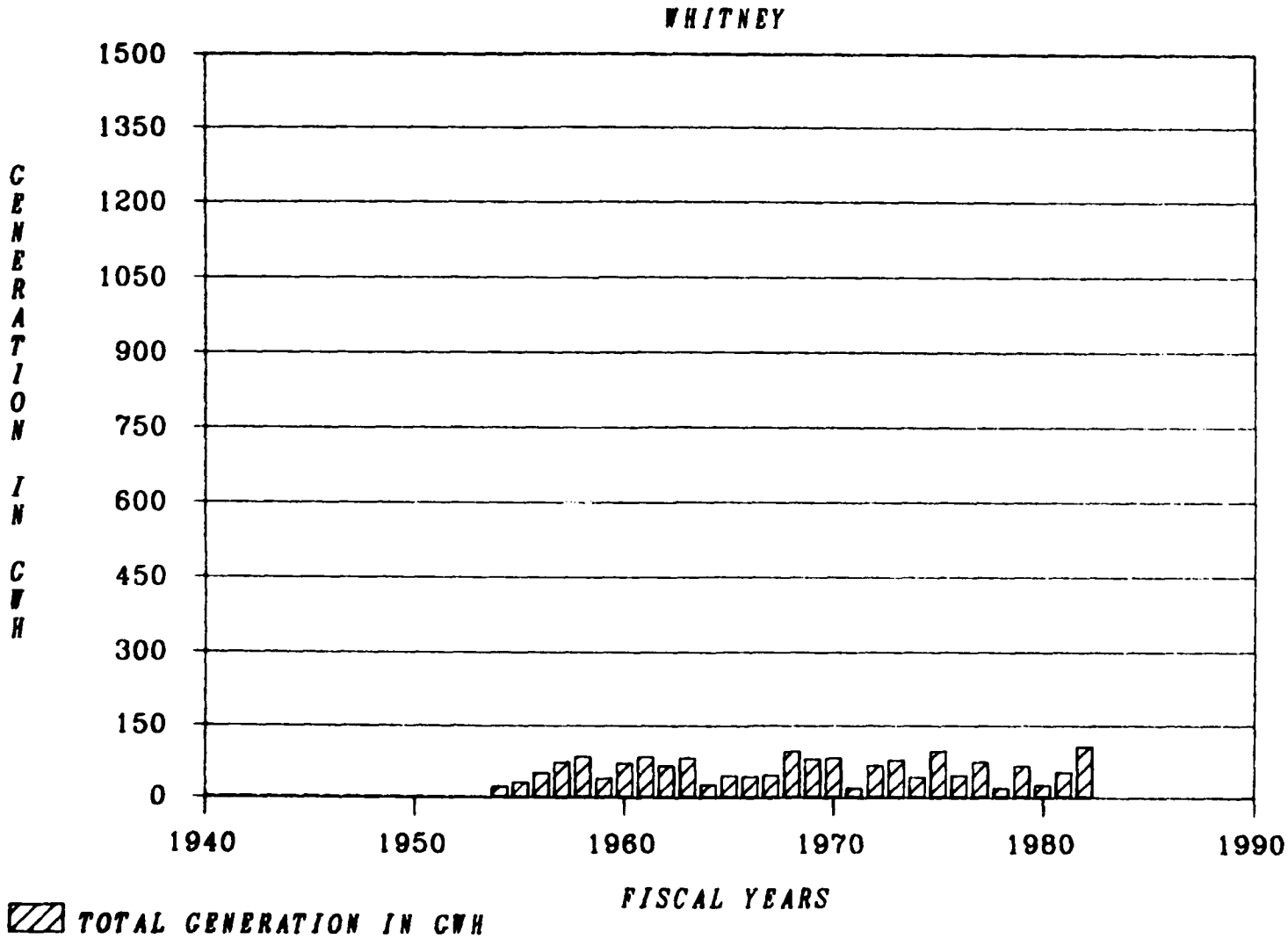
FISCAL YEARS
TOTAL GENERATION IN GWH


WHITNEY
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GENERATION IN CWH
1940
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1990
FISCAL YEARS
TOTAL GENERATION IN CWH

SECTION VI - DISTRICT WATER CONTROL ACTIVITIES

SECTION VI - DISTRICT WATER CONTROL ACTIVITIES

1. Special Reservoir Operation.

a. Albuquerque District.

Abiquiu stored snowmelt runoff from 30 April to 30 June to hold releases to a non-damaging flow rate. Two Rivers had two brief periods of storage starting 3 September and 30 September. Conchas stored runoff from a storm that produced an inflow peak to the reservoir of over 95,000 cfs.

Releases were restricted at Cochiti on four occasions to assist in searching for two drowning victims. The flow was reduced for short periods starting 31 May, 3 June, 27 June, and 1 July.

Total combined releases from Jemez Canyon and Cochiti were held to 1950 cfs from 25-31 August to allow construction to continue at two bridge sites on the Rio Grande in Albuquerque.

b. Fort Worth District. Flood control operations were necessary on two distinct occasions during the past year. The first event began on 12 October 1981 and was primarily confined to the Trinity and Brazos Basins. The second event started on 12 May 1982 affecting again the Trinity and Brazos Basins plus the Sulphur Basin. Eighteen flood control projects out of the District's total of twenty-one used part or all of their flood control storage during the year. There were eleven requests for deviation from the District to the Division during the year. Notable project operations are discussed below:

(1) Spills over the emergency spillways at both the Grapevine and Lewisville projects were experienced during the October-November floods, and again at Lewisville during the May-June events. The maximum discharge over the emergency spillway at Lewisville was 15,354 c.f.s. at elevation 536.48 in October-November and 8,075 c.f.s. at elevation 532.26 in May-June. The duration of uncontrolled flow at Lewisville was 36 days in October-November and 49 days in May-June with a maximum of 136 percent of the flood pool utilized in October-November and 125 percent in May-June. The maximum discharge over the emergency spillway at Grapevine in October-November was 9,070 c.f.s. at elevation 563.50 with a 21 day uncontrolled spill. A maximum of 118 percent of the flood pool was utilized in October-November. The flood of May-June utilized 91 percent of the flood pool at Grapevine with no uncontrolled spill at elevation 558.29. Serious erosion and head-cutting of the emergency spillway channel at Grapevine occurred in October-November with the uncontrolled spill. Major rehabilitation is planned to resolve the problem. Authorized regulated releases from Grapevine and Lewisville continued to cause problems at known locations downstream on Denton Creek and the Elm Fork of the Trinity River.

(2) Both the floods of October-November and May-June utilized a maximum of 95 percent of the flood pool at Lavon. The maximum release was 2,000 c.f.s. in October-November and 4,000 c.f.s. in May-June.

(3) The floods of May-June resulted in a maximum utilization of 24 percent of the flood pool at Wright Patman. Releases were held to a maximum of just over 10,000 c.f.s. The flood flows on the Sulphur River above Wright Patman overtopped several levees in the vicinity of the confluence of the North and South Sulphur Rivers. An ongoing study of the situation is being made.

(4) The Water Control Data System (WCDS) Minicomputers were installed and the ongoing work to utilize them in real time operations has been stepped up. Fifty-nine additional data collection platforms were ordered. The COMSAT General (contractor for USGS) DCP's were removed from the Trinity Basin. The District had installed 35 DCP's at the end of the year with plans to continue installations as quickly as possible. An agreement has been made with the USGS for both installation and operation and maintenance of the data collection platforms.

c. Galveston District. The only special reservoir operation conducted during the year was at Addicks Reservoir. Gate changes were made to allow for maintenance to downstream bridges.

d. Little Rock District. FY82 was a near "average year" from the standpoint of volume of water and water control activities. Annual rainfall and runoff was near normal throughout the District with the exception of the Greers Ferry Basin which experienced only 38 percent of its normal runoff. Most of our flood control activity was during the months of May, June, and July with an isolated but significant rise at Clearwater Lake in August. All of our 12 flood control lakes were utilized in flood regulation activities. The White River lakes experienced 6 to 8 rises, and the Little River lakes experienced 10 to 14 rises. It is noteworthy that Millwood Lake experienced its third highest pool of record: a 10-foot rise to elevation 269.0 in June. Most of the rises throughout the District were fairly small and allowed very effective regulation; therefore, we expect to have gleaned some fairly significant benefits.

(1) Special operations or activities related to water control projects are summarized as follows:

(a) Little River System. Stilling basin inspections at DeQueen and Gillham Dams in September 1981 revealed that both these projects had experienced significant concrete erosion with the exposure of the steel reinforcement. Repair was scheduled for both stilling basins in late summer of FY82. The lakes were lowered prior to the scheduled work (10 feet at DeQueen and 15 feet at Gillham) to assure adequate storage of inflows without the need for releases during the repair work. Low flow diversion piping was installed at each project to allow fishery releases throughout the repair period. Repairs were begun on 31 August at DeQueen and are nearing completion at this time. The contractor was unable to begin work at Gillham and the contract was canceled in November 1982. Both lakes are currently being allowed to refill to their conservation pool levels.

The EWQUOS field studies on the Cossatot River by the W.E.S. were completed this summer and Gillham low flow releases have been returned to normal fishery release pattern. Water supply withdrawls from Gillham Lake were begun in November 1981. The contractor is Tri-Lakes Water District and this is the initial usage of the water supply storage contained in this project.

(b) Arkansas River System. A late spring flood in the Oklahoma portion of the basin produced a sediment bearing recession in June and July. The recession created several shoals and required dredging as reported in paragraph 3. As a water management aid to reduce shoaling in upper pool reaches, a limited "hinged pool" operation was used in conjunction with the Tulsa District's navigation tapers throughout most of the recession at five of the navigation dams most prone to shoaling problems. The effectiveness of the hinged pool operation in moving the shoals into deeper portions of the pools could not be quantified because of the lack of sufficient sounding capability. However, the operation did appear to offer some promise at reducing dredging effort and we plan to further test the approach in FY83.

On 27 June, during the last part of the flood recession, a tow broke up after colliding with a bridge abutment about a mile upstream of Lock and Dam 4. One of the barges floated into the dam and was impaled on the tainter gate piers across three gate openings. The ruptured barge spilled several thousand gallons of oil that formed a partial oil slick downstream to Lock and Dam 2. Emergency gate operations were established for the remaining gates to lessen the scour potential on the riprap blanket at the toe of the stilling basin during removal operations. The Coast Guard supervised removal of the barge and the E.P.A. took charge of the efforts to clean up the oil spill. The barge was removed on 11 July and there was no detected damage to the structure nor the downstream environment.

(c) White River System. No special water management activities.

(2) Studies, reports, and investigations related to water control projects are summarized as follows:

(a) Table Rock. Dissolved Oxygen deficiency is annually circumvented by restricting peak generation rates and making oxygen-rich spillway releases to supplement low D.O. turbine releases. As the spillway releases do not mix well with the turbine releases because of temperature differences, tests were conducted on the capability to use the lower level emergency conduits as a source of oxygenated supplemental releases. The conduits did produce well oxygenated releases but experienced severe cavitational impulses as the tailwater elevation rose in response to turbine releases. Because of the cavitation potential, we plan no further use of the conduits as a supplemental release facility. We do plan to further test oxygen injection into the station service unit in early FY83.

(b) Embankment Seepage. Clearwater Dam was further monitored in FY82. In 1980 a collector drain was installed along the base of the left abutment to safely remove seepage water. A comprehensive report on this subject was completed by the Foundation and Materials Branch in August 1981. To date, no piping of materials has been observed and the drain appears to be working properly. The seepage rate increases with pool levels but does not require any special water level control; however, monitoring is intensified at higher pool levels.

(c) White River Lakes Restudy. This study has been underway since 1975 and is nearing completion. The draft report should be available in early 1983. The study is not expected to recommend any significant changes in the functions or regulation of the projects.

(d) Hydropower studies. FY82 studies included the submission of a Survey Report on Locks and Dams 8, 9, and 13, and a Preliminary Feasibility Report for Locks and Dams 2 through 6. Work has begun on the Survey Report for Locks and Dams 2 through 6 and the Preliminary Feasibility Report on two pump-storage projects and additional capacity at Dardanelle and Ozark. These reports are scheduled for completion in FY 83.

Plan formulation is complete on Norfork Units 3 and 4. Six alternatives remain in consideration and these are being analyzed to determine which produce a marketable output.

Reviews were completed on eight F.E.R.C. Preliminary Permits (Locks and Dams 2, 3, 4, 5, 6, 7, 9, and 13) and four Applications for Licenses (Locks and Dams 2, 6, 9, and 13).

(e) Flood emergency plans. Plans were completed for Blue Mountain Dam in FY82 and comparable plans should be completed for Beaver, Table Rock, Bull Shoals, and Nimrod Dams in FY83. Also, Dam Safety Training was completed at 15 projects in FY82.

e. Tulsa District.

(1) Arkansas River Basin. Flows in the Arkansas River basin were about 20 percent above normal this year. The majority of the runoff-producing storms occurred in October, February, and May-June. In May and June the highest pool level of record was experienced at Kaw, the second highest at Eufaula, Council Grove and Birch, and the third highest at John Redmond, Toronto, Elk City, Heyburn, and Norman. In early June approximately 40 percent of the basin flood control storage was utilized. The peak daily flow at Van Buren during this time was about 160,000 c.f.s. Two navigation tapers were made this year. The first extended from the end of January through the end of March. The second extended from mid-May to mid-August. About 44,000 acre-feet was drawn from the conservation pool at Oologah to provide navigable flows during the last week of the taper. As of the end of September Oologah was still about 20,000 acre-feet short of having a full conservation pool. Special releases were made at Keystone Dam and at Robert S. Kerr and W. D. Mayo Locks and Dams in September for raft races at Tulsa and Fort Smith.

(2) Red River Basin. Flows in the Red River basin averaged 75 percent above normal during FY82. The year began, however, with most projects drawn down into the conservation pools. The drawdowns ranged from 1 to 2 feet at most projects to 6 and 13 feet respectively at Lake Texoma and Broken Bow hydropower projects and a 33-foot drawdown at the Bureau of Reclamation's Altus irrigation project. The basin experienced two major flood periods during the year. The first was during the fall (October-November 1981) when an intense storm dumped over 2 feet of rainfall in portions of the basin in a 1-week period. The second occurred in the late spring and summer months of May through July 1982 when a series of smaller storms combined to produce a large volume of water in the Red River basin. The October-November flood period was a result of very intense rainfall caused by Hurricane Norma. Several peak pool level records and two record river stages were recorded in FY82. Hugo Lake established a new peak pool in June when the level reached elevation 425.09. This amounted to 52 percent of the flood control storage utilized. Lake Texoma recorded the second highest pool of record in June 1982 and the third highest in October 1981 when

the level reached elevation 632.11 and 630.71 respectively. Pat Mayse and Pine Creek Lakes also recorded the second highest pool levels of record at elevations 462.41 and 462.29 respectively. A new maximum flood stage of record was established at Gainesville, Texas, on the Red River when the stage reached 29.45 feet. This was about 3 feet higher than the previous record. The Blue River at Blue, Oklahoma also set a new record of 44.2 feet. This new record was 12.2 feet higher than the previous record. Waurika Lake on Beaver Creek near Waurika, Oklahoma rose into the flood pool for the first time since closure in August 1977 requiring the first project flood releases. Lake Kemp located about 50 miles west of Wichita Falls, Texas rose into the flood control pool for the first time in June and reached elevation 1144.95 on 29 June, the highest since it was reconstructed. A record high pool level of 1349.44 was reached at Fort Cobb Lake on 4 June and the second highest pools of record were set at Foss and Tom Steed Reservoirs.

2. Water Quality Program and Activities.

a. Albuquerque District.

(1) The goals of the Albuquerque District water qualify data collection program are to provide an accurate picture of lake conditions as to pH, turbidity, temperature, and dissolved oxygen. Trends are monitored to show improvement or degradation of water quality and the data used to identify public health, fish and wildlife problems.

(2) Readings are made on a monthly basis for the following parameters: surface pH, secchi disk, and dissolved oxygen and temperature at surface and one-meter increments to the bottom.

(3) Data will no longer be entered into EPA STORET data base after 15 November 1982. These data will be available in the District Operations office.

The following is a listing of sampling locations for each project:

WATER QUALITY SAMPLING LOCATIONS

PROJECT	LOCATIONS	NUMBER
Abiquiu	Chama inflow, Canones inflow, reservoir near dam, release	4
Cochiti	Bland canyon, reservoir near dam, release	3
Conchas	Conchas and Canadian inflow, reservoir near dam, irrigation headworks	4
John Martin	Arkansas inflow, reservoir near boat ramp, reservoir near dam, reservoir near Ft. Lyon Hospital, two Lake Hasty locations, release	7

Trinidad	Purgatoire inflow, reservoir near dam, release, reservoir near Carpios ridge	4
Jemez Canyon	Inflow, reservoir near dam	2
Santa Rosa	Pecos inflow, reservoir near dam, reservoir near asphalt pit, release	4

Biological samples are tested monthly at Abiquiu and occasionally at other projects. District personnel are trained in the use of a gas chromatograph to test for dissolved nitrogen. Tests at Santa Rosa are planned for hardness and sulfate to monitor effects of gypsum deposits in the reservoir. Samples of inflow and releases at two reservoir locations will be tested monthly.

b. Fort Worth District.

(1) The goals of the Fort Worth District water quality data collection program is to collect water quality data at all the existing projects in order to establish baseline conditions, monitor subsequent changes and identify water quality problems and resolve same where possible.

(2) Summary of Activities.

(a) An intensive monitoring program was started in order to comply with the "Southwestern Division Draft Regulations on Water Quality Activities at SWD Civil Works Projects". As a result of this program, baseline conditions at 17 of the 21 projects in the Fort Worth District had been established by the end of FY 1982. Intensive monitoring on the remaining projects will be accomplished during Fiscal Years 1983 and 1984. Baseline conditions on all the completed projects will have been established by the end of FY 1984.

(b) Water Quality Data Report for Lavon Lake for FY 1981 was approved in July 1982. Water Quality Data Reports for Grapevine Lake and Lewisville Lake have been completed. These will be submitted to SWD as soon as they are typed.

(c) The thermal simulation modeling for Ray Roberts Lake submitted to the SWD in April 1982 as an Appendix 1 to Hydrology D. M. has been approved.

c. Galveston District. The detailed report, Barker and Addicks Reservoirs, for the 3-year quality program to show the effects of the length of impoundment on quality and determine the release rates which produced the most improvement downstream, has not been completed by the U.S. Geological Survey. The report should be available in FY83.

d. Little Rock District. The overall goal of the water quality management program is to improve or maintain water quality in the Little Rock District projects at the highest level possible, consistent with each project's purposes,

design, and funding. Specific objectives to achieve this goal would be identified as the District Water Quality Management Plan is developed, approved, and implemented. The district water quality management programs are divided among various elements of the Construction-Operations and Engineering and Planning Division by functional missions.

(1) Construction-Operations Division Responsibilities. The Permits Branch has been given the responsibility for conducting the district water quality program for Construction-Operations Division. The Branch is composed of a Permits and Water Quality Section and a Compliance and Data Collection Section. Since the regulatory functions of the branch closely parallel functions of the division's water quality management program, field activities are very conveniently and effectively combined to implement the programs. This is primarily due to the related procedural and logistical requirements of both regulatory functions and water quality activities. These responsibilities include the following programs relating to water quality management.

(a) Lake Monitoring. General lake water quality monitoring of all Little Rock District lakes other than the main stem of the Arkansas River is presently performed three times per year on each lake at six to eight stations at various depths. The fieldwork is done by USGS personnel under Corps of Engineers contract. Approximately 26 parameters are measured to ascertain general lake water quality and to provide background data in abating water pollution. There are no State or other Federal programs which routinely provided these data on the main stem reservoirs operated by the Corps. Data obtained are maintained in the Permits Branch and are available from STORET and annual USGS Water Resources Data Publications for Arkansas and Missouri. Data obtained are used to evaluate long and short term water quality changes, to identify pollution sources, and to properly manage lake water quality. Their evaluations include the identification of potential pollution sources so as to enable the Corps' influence to bear its persuasiveness in decisionmaking processes of others. This will assist project personnel and district officials in assuring that best management practices are followed for erosion control in development around lake areas and that best available technology is applied where domestic and industrial wastewater discharges are allowed in district lakes. These findings are published in Water Quality Management Reports and annual updates for each project. The Greers Ferry and Table Rock Water Quality Management Reports have been published. At this time statistical analysis is being performed on data collection thus far (1974-Present).

(b) Discharge Permit and Operational Monitoring. Monitoring of district wastewater treatment systems and other NPDES discharges in Missouri and Arkansas is performed in accordance with NPDES permit requirements. The USGS obtains the necessary monthly samples and analyzes these for BOD, bacteria, and suspended solids. Operational monitoring performed twice weekly by the sewage treatment plant operators includes pH, flow, chlorine residual, dissolved oxygen, and settleability. This program is conducted in accordance with Section 402 of the Clean Water Act. This program is implemented by the State of Missouri and EPA, Region VI, in Arkansas.

(c) Bathing Beach Monitoring. Monitoring is performed five times monthly by resident area personnel on district bathing beaches during the swimming season to insure safe bacteriological quality of lake waters. Samples are analyzed by the Missouri and Arkansas Health Departments free of charge. A central log containing results for all projects is maintained by the Permits and Water Quality Section. This program is administered in accordance with SWD Regulation 1130-2-9 and applicable State laws.

(d) Potable Water Monitoring. Potable water supplies of the district are tested for physical, chemical, and bacteriological quality to insure their adequacy and safeness. Bacteriological samples are collected by resident area personnel and mailed to the appropriate health departments, which presently perform the analyses free of charge. Permits Branch personnel collect samples for complete chemical analysis by the health departments on each new water supply and for periodic nitrate analysis thereafter. Data obtained are used in an annual sanitary survey and report forwarded to SWD for reporting to OCE. This program is conducted as per ER 1130-2-407 and applicable Federal and State drinking water standards for noncommunity water supply systems.

(e) Dredged Material Analysis. Three times yearly, a bottom sediment survey is performed at eight locations along the Arkansas River navigation project and less frequently at other locations on other district rivers and lakes. Sediment and water column samples are frozen and sent to SWD laboratory for sediment, water, and elutriate analyses. The purpose of this program is to detect potential effects of dredging operations on water quality. These operations include both commercial dredging under Corps permits and channel maintenance dredging performed under Corps of Engineers contract.

(f) Pollution Complaints and Hazardous Substance Spill. Permits Branch receives calls reporting instances of pollution and hazardous substance spills and coordinates these reports with appropriate Federal and State officials. On occasion, Branch personnel investigate these pollution complaints to verify existing conditions and determine effects on project operations. During oil and other hazardous substance spills, branch personnel participate in emergency containment and cleanup measures with Coast Guard and EPA officials and when so designated act as the Federal on-scene coordinator for these two agencies.

(g) Special Studies. The Compliance and Data Collection Section routinely assists Engineering and Planning Divisions in obtaining samples and analyses for special water quality studies conducted by that division, such as for planning purposes. Coordination is also accomplished with studies being performed by other agencies such as EPA, State Pollution Control, Health Department, Soil Conservation Service, etc.

(2) Engineering and Planning Division Responsibilities. There is no specific organization for water quality studies within Engineering and Planning Division. Responsibility is assigned to the various elements based on the nature of the program or study.

(a) Lake Profile and Release Monitoring. Water quality data have been collected at Beaver, Table Rock, Bull Shoals, Norfork, and Greers Ferry Lakes since 1966; at Blue Mountain, Clearwater, and Nimrod lakes since FY81; and at DeQueen, Dierks, Gillham, and Millwood Lakes since April 1981. Presently, monthly profiles of pH, temperature, dissolved oxygen, and specific conductance are obtained from the five lakes, as well as a grab sample below each dam. Additional profiles are obtained from Table Rock Lake during critical times of the year. These data are used in the design of operating features needed for preventing or lessening water quality problems downstream of the dams. They also contribute to the water control management activities required to maximize dissolved oxygen concentrations in the fall releases from Table Rock and to maintain acceptable temperatures downstream of all lake projects from May through October. Hydraulics Branch is responsible for this program and data collection is contracted to USGS.

(b) Special Studies. The Planning and Hydraulics Branches periodically conduct water quality studies as part of normal project planning efforts such as preparation of survey reports, design memorandums, and environmental impact statements. Certain special water quality related studies are identified below:

Greers Ferry Lake Environmental Protection Study. The Planning Branch has completed a 208 Water Quality Management-type Study which also addresses solid waste disposal needs. Plans of improvements and their cost have been proposed for implementation by the area residents. The draft final report is being prepared at present.

White River Lakes Study. This study includes an evaluation of how the release schemes of Bull Shoals, Norfork, and Greers Ferry Lakes might be modified to minimize adverse water quality impacts downstream.

Taylor Bay Siltation Study. This study investigated the effects of suspended sediment on fishing in Taylor Bay near Augusta, Arkansas. The sources of the silt were identified and alternate solutions were developed. Funds are included in the FY83 budget to develop a plan to reduce or eliminate sediment in Taylor Bay.

(3) Laboratory Capabilities. Water quality analyses performed at the district level are limited to the following capabilities:

(a) Field testing of water quality which may be conducted by Corps personnel includes dissolved oxygen, temperature, pH, specific conductivity, Secchi Disc measurements, and others using HAC field test kits approved by EPA.

(b) A small laboratory located in Construction-Operations Division can perform the following analyses: dissolved oxygen, color, turbidity, alkalinity, hardness, and others using colorimeter methods for analyses.

(4) Data Management. Lake water quality data collected and analyzed by USGS are entered into WATSTORE and STORET, the computerized data management systems of the USGS and EPA, respectively. These data are also published in the

annual USGS water resources reports for Arkansas and Missouri. Results of potable water, bathing beaches, NPDES, and other monitoring are kept in log books or files as appropriate. Special data collection results are contained in the reports dealing with the specific subject for which data were collected.

(5) Future Water Quality Management Program. It is planned to develop a comprehensive coordinated District Water Quality Management (WQM) Plan. Loss of key personnel spaces thus far has precluded this. The plan would assign responsibilities for the various aspects of the overall program and establish guidelines for assigning responsibility for new programs and studies. A District Water Quality Committee will hopefully also be established. It would guide the development of the WQM Plan, periodically evaluate the program, and help establish priorites for future work. A major feature of the plan would be the establishment of a three-phase process for evaluation of all projects. Phase 1 would result in specific WQM objectives for each project based on a preliminary assessment of available data. Phase 2 would involve collecting data, developing and assessing alternatives, and recommending programs to meet the project objectives. Phase 3 would be implementation of the recommended plan and monitoring to assess its success.

e. Tulsa District. Studies to evaluate various regulation procedures designed to provide quick responses to downstream water quality problems were continued during FY82. These studies included the power projects which typically release water from the anoxic hypolimnetic zone. Dissolved oxygen, temperature, conductivity, and pH data were taken at Lakes Texoma, Eufaula, Keystone, and Tenkiller. Data were taken at specific intervals.

At Lake Texoma, a minor fish kill involving about 40 stripe bass occurred below the dam in September 1982. The apparent cause was low dissolved oxygen. In September, a fish kill occurred in the Cimmarron arm of Keystone Lake. Temperature stress appeared to be the probable cause since the lake was completely destratified at this time.

At Pine Creek Lake, iron and manganese data were collected in order to evaluate the effect of hypolimnetic releases on the Wright City, Oklahoma water supply. Water quality data collection on Cow Creek and Cache Creek was continued during FY82 in an effort to evaluate the effects of releases from the Waurika water conveyance system on the water quality of these streams. The results of these studies should be available in January 1983.

3. Sediment Program and Activities.

a. Albuquerque District.

(1) Revised area-capacity data for Cochiti Lake were implemented in January 1982. The revised data were based on the results of the October 1981 resurvey. The resurvey data revealed a significant sediment delta that has formed near the head of the permanent pool. These sediment deposits have eliminated approximately 14 percent of the surface area of the authorized permanent pool.

(2) Jemez Canyon Reservoir was also resurveyed in October 1981; however, inconsistencies in photogrammetric data have not been resolved and revised area-capacity data have not been developed.

b. Fort Worth District. Sediment activities consisted of routine studies in connection with hydrologic investigations studies.

c. Galveston District. No sediment work was conducted at either Barker or Addicks Reservoirs during FY82.

NAVIGATION PROJECTS - DREDGING
(Cubic Yards)

Project	FY 81	FY 82 1/
Brazos Island Harbor	1,594,779	-
Cedar Bayou	-	687,000
Corpus Christi Ship Channel	9,692,642	9,026,985
Double Bayou	304,242	-
Freeport Harbor	494,160	1,707,026
Galveston Harbor	-	8,309,783
Houston Ship Channel	7,081,795	-
Matagorda Ship Channel	1,618,853	7,829,138
Sabine-Neches Waterway	9,333,485	8,512,606
Texas City Channel	441,178	8,523,226
SUBTOTAL	30,561,134	44,595,764
GIWW		
Sabine River to Galveston	-	-
Galveston to Corpus Christi	5,241,467	8,815,732
Corpus Christi to Mexican Border	7,705,332	3,104,522
SUBTOTAL	12,946,799	11,920,254
TOTAL	43,507,933	56,516,018

1/ Preliminary data subject to revision.

d. Little Rock District.

(1) Summary of Activities. Suspended sediment samples are collected at 17 stations. The 247 sediment ranges on the main stem of the Arkansas River are resurveyed as near annually as funds and survey workload permit. From October 1981 through September 1982, there were 149 ranges scheduled for resurveying; 103 resurveys were accomplished. There are 143 ranges scheduled to be resurveyed in FY83. Fifty-six tributary ranges are resurveyed less frequently when appreciable deposits are suspected. About 50 index ranges out of 350 sediment ranges in the other eight lakes are resurveyed at 10-year intervals. During the period from October 1981 through September 1982, none were resurveyed. Clearwater Lake in Missouri is scheduled for resurvey during FY83.

(2) White River Entrance Channel Model. The Entrance Channel Model is a physical movable bed hydraulic model which has been constructed at Waterways Experiment Station (WES) to study the navigation depth problems which occur on the White River at its confluence with the Mississippi River. This part of the White River acts as an entrance to the Arkansas River Navigation System. Design of the model began during November 1981 and construction was completed during September 1982. WES personnel expect to begin testing and calibration studies during October. The major change during model construction was extension of the upper reach to make provisions for testing a sediment trap.

(3) Channel Maintenance. Maintenance dredging to maintain navigable depths amounted to approximately 809,000 cubic yards in FY82. All of this amount was removed from Pools Nos. 2, 3, 7, and 9. This was an increase of about 267,000 cubic yards over the FY81 dredging requirements. Two Corps of Engineers fleets were used to clam small shoals in Pools Nos. 4, 7, 8, and Lake Dardanelle. The high flows in May and June caused shoaling at several locations along the Arkansas River portion of the navigation system. There were 32 tow groundings reported during July and August. Traffic was restricted to 8 hours per day at navigation mile 50 on 28, 29, and 30 July, and on 25, 26, and 27 August, 9-foot depths were available at navigation mile 46 only by storing and releasing water through Lock and Dam No. 3. It was necessary to raise most of the navigation pools during the summer to maintain navigation. Most of the navigation pools were hinged about 2 feet while the flows were high and receding. When the flows receded to near 50,000 c.f.s., it was necessary to discontinue the pool hinging operation in order to maintain navigable depths and to minimize the impact on private marinas and docks. The effects or benefits of the pool hinging was not determined due to limited nature of the operation.

e. Tulsa District. The following activities were accomplished during 1982. Segimental elevation-area data for Copan, El Dorado, Sardis and Skiatook Lakes were developed. Reconnaissance resurveys of sedimentation were performed on John Redmond Reservoir, Keystone Lake, and Lake Texoma and a contract was awarded for a detailed resurvey of Marion Lake. Original survey of sedimentation and degradation ranges for Copan Lake is 70 percent complete. Pole monument contracts for Marion and Waurika Lakes have been initiated and completion of installation is due in December 1982.

Reservoir sediment data summaries showing the results of the last resurveys for Keystone, Toronto, Robert S. Kerr, and Webbers Falls Lakes were submitted and approved. Updating and revisions of the historical sediment data for Tulsa District is being compiled for the WATSTORE data system. Suspended sediment samples were collected at 17 sites. The tapering of flows following flood periods on the Arkansas River were effective in reducing shoaling problems on the McClellan-Kerr Arkansas River Navigation System. Although dredging was required in three areas, it was not related to high flow conditions. About 72,000 cubic yards were dredged from the Chouteau Lock downstream approach channel and about 80,000 cubic yards were removed from the upstream approach channel. This is the first time in 12 years of operation that the upstream approach channel has been dredged. The lower part of the downstream channel was dredged in 1975 and 1979.

4. Navigation Activities.

a. Galveston District. Consolidated statement of tonnage handled by ports and moving on the Gulf Intracoastal Waterway in US Army Engineer District, Galveston.

(SHORT TONS)

	CALENDAR YEAR 1980	CALENDAR YEAR 1979
1. Brownsville, Texas	2,569,697	2,508,076
2. Port Isabel, Texas	304,964	308,021
3. Corpus Christi, Texas	45,001,096	55,597,104
4. Freeport, Texas	20,131,067	19,983,837
5. Galveston, Texas	9,631,091	8,982,285
6. Houston, Texas	108,937,268	117,550,908
7. Texas City, Texas	25,948,936	35,954,301
8. Sabine Pass Harbor, Texas	949,404	867,813
9. Port Arthur, Texas	29,796,633	32,773,346
10. Beaumont, Texas	52,260,728	58,136,896
11. Orange, Texas	567,157	631,694
12. Port Lavaca-Point Comfort	3,991,089	4,562,702
13. Anahuac, Texas	41,665	14,900
14. Moss Bluff, Texas	207,471	290,493
15. Liberty, Texas	22,598	32,038
16. Clear Creek & Clear Lake, Texas	20,700	103,280
17. Double Bayou, Texas	48,554	49,618
18. Cedar Bayou, Texas	328,513	361,179
19. Colorado River, Texas	436,585	458,681
20. Sweeny, Texas	673,740	601,435
21. Palacios, Texas	85,862	88,804
22. Dickinson, Texas	19,275	105,573
23. Aransas Pass, Texas	9,113	21,559
24. Port Mansfield, Texas	13,432	11,000
25. Harlingen, Texas	623,292	666,223
26. Channel to Victoria, Texas	3,303,122	2,807,138
27. Chocolate Bayou, Texas	2,934,850	3,040,898
28. Johnsons Bayou	568,057	487,658
29. Rockport	181,694	37,240
TOTAL	309,607,653	347,034,688
Gulf Intracoastal Waterway, Texas: (Traffic on Waterway)		
Sec. 1. (Sabine River to Galveston)	41,976,730	42,920,273
Sec. 2. (Galveston to Corpus Christi)	21,142,516	22,436,774
Sec. 3. (Corpus Christi to Mexican Border)	2,388,221	2,488,372
TOTAL (1)	65,507,467	67,845,419

(1) Includes duplications.

TEXAS DEEP WATER PORTS

CALENDAR YEAR 1980

(SHORT TONS)

PORTS	DRY CARGOES	LIQUID CARGOES	TOTAL
1. Brownsville	1,358,586	1,211,111	2,569,697
2. Port Isabel	133,164	171,800	304,964
3. Corpus Christi	8,858,100	36,142,996	45,001,096
4. Freeport	621,599	19,509,468	20,131,067
5. Galveston	6,979,328	2,651,763	9,631,091
6. Houston	32,529,346	76,407,922	108,937,268
7. Texas City	116,079	25,832,857	25,948,936
8. Sabine Pass Harbor	95,298	854,106	949,404
9. Port Arthur	848,604	28,948,029	29,796,633
10. Beaumont	3,546,163	48,714,565	52,260,728
11. Orange	309,925	257,232	567,157
12. Port Lavaca-Point Comfort	3,325,943	665,338	3,991,089
TOTAL	58,721,943	241,367,187	300,089,130

b. Little Rock District. Projections indicate that about 9.0 million tons of commerce will be moved on the McClellan-Kerr Arkansas River Navigation System in CY82. This represents a decrease of 4 percent from the CY81 level. Commodities moved consisted of bauxite, iron and steel, chemicals and chemical fertilizers, petroleum products, coal, sand and gravel, crushed stone, soybeans, wheat, other grains, and miscellaneous commodities. Internal movements decreased by 18 percent and outbound movements decreased by 4 percent.

	1981 (Tons)	1982 (Tons)
Inbound	1,500,000	1,500,000
Outbound	5,700,000	5,500,000
Internal	1,700,000	1,400,000
Through	500,000	600,000
Total	9,400,000	9,000,000

c. Tulsa District. Commercial tonnages in Oklahoma are about 11 percent less than in 1981. Wheat and soybeans showed the greatest drop. All othe commodities except iron and steel are less than 1981 figures. Iron and steel gains are slight, but reflect continued construction steel and oil field pipe demands. Most petroleum shipments are number 6 fuel oil. This product comes in larger quantities from older, less efficient refineries. One such refinery in Tulsa has shut down and tne quantity of petroleum products moved by barge has decreased about 25 percent.

A barge accident occurred at W. D. Mayo Lock and Dam. This was the second accident at this lock and dam. The first occurred in November 1972. A tow consisting of six barges loaded with wheat was downbound on 29 May with a river flow of about 110,000 c.f.s. The towboat Captain saw that as he was approaching the lock that the tow was endangered. In order to lessen the damages to the tow, the Captain cut the barges from the towboat. The barges hit the spillway. Five of the barges wedged against the pier noses causing some damage to the spillway. However, one barge damaged Tainter Gate 2 and sank in an upstream-downstream position and resting on the spillway weir. This barge was removed on 3 July. Plans and specifications for repairs has been completed.

5. Cooperative Programs.

a. Albuquerque District. The Albuquerque District no longer has a climatic program with the National Weather Service. The cooperative stream gaging program with the U.S. Geological Survey covers 40 stations. Program cost for FY 1982 is shown in table VI-1. Total program cost for FY 1983 is $189,540. The following is a summary of stations by river basin:

STATION SUMMARY

Basin	Stations		Total
	Stream	Reservoir	
Arkansas	5	2	7
Canadian	4	1	5
Rio Grande	13	4	17
Pecos	8	3	11

Note: 5 gages are not associated with project operation.

b. Fort Worth District.

(1) National Weather Service. Funds are transferred by SWF to the NWS in the amount of $80,744 for FY 1982. Under ongoing programs the Corps collects rainfall at project offices while the NWS collects all other rainfall reports and maintains weather stations, including those at Corps' projects. Rainfall summaries are transmitted to the Corps via teletype, telephone, and a daily computer printed map which displays current totals for reporting stations. Supplemental and accumulative storm total printouts are provided upon request. Additional hydrometeorological information was received from the NWS via the teletype circuits and AFOS. Radar scans were obtained on a Kavouras radar acquisition access and display terminal via a direct connection to the NWS Stephenville radar site (which covers the geographic area where the majority of the District's projects are concentrated) and via commercial long-distance telephone into NWS radar sites at Galveston, Hondo, and Brownsville, Texas, and into Oklahoma City, Oklahoma. Continuous up-dates are possible during storm periods.

(2) U.S. Geological Survey.

(a) General. The USGS performed operation and maintenance on all streamflow, lake level, sediment sampling and some water quality stations in co-operation with the District. In addition, they arranged for reporting at river stages during flood events, made supplemental flow measurements, and processed all published data.

(b) Funds. The Fort Worth District transferred to the USGS for the Co-operative Stream Gaging Program a total of $557,880 in FY 1982. Table VI-2 shows the number of stations, the types of funds for each of several groups of stations and both the USGS and the CE contributions toward the total station cost.

c. Galveston District. Two cooperative programs are in extistence in relation to the operation of Barker and Addicks Reservoirs. The program with the U.S. Geological Survey provides the operation and maintenance for the gages that record streamflow and reservoir content data used in the operation of the projects. Program cost for FY82 is shown in table VI-3. The program with the National Weather Service provides for the operation and maintenance of the precipitation gages and collection of data used in project operation.

d. Little Rock District. Approximately 176 rainfall and/or river stage reporting stations were operated by the National Weather Service and the Corps of Engineers in or near the Little Rock District. Of these, 112 stations are in the Corps of Engineers/National Weather Service program. The remaining 64 stations are operated solely by the National Weather Service within or near the Little Rock District. Six of these stations are airway stations that report at 6-hour intervals. Reports from these stations are used in forecasting streamflows for flood warning and operation of reservoir projects. The stream gaging data required by the district are collected under a cooperative agreement with the USGS. During the fiscal year, 100 stations were operated of which 65 were operated cooperatively and 35 were operated by the Corps of Engineers. The FY82 total cost for collection of streamflow and some sediment data was $411,340 of which $235,790 was transferred to USGS. Program cost for FY82 is shown in table VI-4. The FY83 cooperative program was increased by four stations and contemplates a cost of $457,180 of which $273,980 will be transferred to USGS.

e. Tulsa District.

(1) Stream Gaging Program. Much of the information required for water control, hydrologic investigation and design of our water resources projects results from the reporting and measurement of flow, water quality, and sediment provided by a cooperative stream gaging program with the U.S.G.S. During FY82 this cooperative program included 250 stations of which 40 were operated independently by the Corps of Engineers. The stream gaging program in the Tulsa District cost $769,450 in FY82 with $567,810 of this being transferred to the U.S.G.S. for operation of stations and data publication. Table VI-5 shows a breakdown of the program by class of funds used to finance the program.

(2) Reporting Network Program. Real-time water control and investigation and design of our water resources projects requires the measurements and reporting of rainfall and evaporation data. These data are provided through a cooperative program with the National Weather Service. During FY82 the rainfall and evaporation program in the Tulsa District cost $97,416 through transfer of funds to the National Weather Service.

b. Annual Flood Damages Prevented.

a. Albuquerque District. The following is a listing of damages prevented by Corps and Section 7 projects during FY82.

	Damages Prevented in Thousands	
Basin	Project	Damages Prevented
Arkansas	John Martin	0
	Pueblo	-
	Trinidad	0
Canadian	Conchas	11.0
Rio Grande	Abiquiu	89.3
	Cochiti	0
	Galisteo	0
	Jemez Canyon	0
	Platoro	37.7
Pecos	Santa Rosa	0
	Two Rivers	220.1

b. Fort Worth District. The following is a listing of annual flood damages prevented by both Corps' and Section 7 projects.

ANNUAL FLOOD DAMAGE PREVENTED

PROJECT	DAMAGES PREVENTED FY82 $	CUMULATIVE BENEFITS THRU FY82 $
Bardwell	0	8,659,700
Belton	0	105,983,100
Benbrook 1/	7,700,000	48,303,500
Big Fossil	1,300,000	6,267,700
Canyon	0	49,624,100
Grapevine 2/	376,323,700	801,008,400
Hords Creek	0	937,200
Lavon	27,605,400	81,704,300
Navarro Mills	0	25,576,900
Pleasanton	0	115,000
Georgetown	0	2,511,400
Proctor	0	5,166,700
Sam Rayburn	2,844,700	50,528,900
O. C. Fisher	0	2,375,600
San Antonio	0	44,055,500
Somerville	0	30,354,700
Stillhouse Hollow	0	20,596,800
Waco	0	58,731,900
Whitney	7,000,000	131,516,200
Granger	0	5,721,900
Lake O' The Pines	0	6,139,000
Wright Patman	0	13,697,000
Marshall Ford	0	134,745,600
Twin Buttes	0	347,500

1/ Includes damages prevented by Fort Worth Floodway.

2/ Includes damages prevented by Lewisville and Dallas Floodway.

c. Galveston District. The flood damages prevented along Buffalo Bayou, by the Barker and Addicks Reservoirs, during FY82 were $11,700,000.

d. Little Rock District. No data available at this time for FY82.

e. Tulsa District. Flood damages prevented by Tulsa District lakes amounted to $57,570,000 during FY82. The cumulative total of flood damages prevented at all lakes total $673,383,000. The following is a breakdown of flood damages prevented for all lakes in Tulsa District including the non-Corps Section 7 lakes.

FLOOD DAMAGES PREVENTED BY COMPLETE AND ESSENTIALLY COMPLETED PROJECTS - TULSA DISTRICT

Arkansas River Basin	FY 1982 $	Thru 30 Sep 82 Cumulative $
Birch	330,000	700,000
Canton	340,000	6,380,000
Cheney	60,000	6,940,000
Copan	390,000	390,000
Council Grove	1,060,000	8,990,000
El Dorado	-	-
Elk City	30,000	36,270,000
Eufaula	640,000	35,270,000
Fall River	890,000	27,410,000
Fort Gibson	210,000	27,950,000
Fort Supply	-	3,060,000
Great Salt Plains	-	13,240,000
Heyburn	720,000	4,140,000
Hulah	500,000	59,990,000
Kaw	3,590,000	9,330,000
Keystone	2,770,000	84,660,000
Marion	-	26,130,000
Markham Ferry	30,000	5,490,000
Norman	375,000	2,630,000
Oologah	140,000	38,580,000
Optima	-	7,000
Pensacola	260,000	37,050,000
John Redmond	12,520,000	51,840,000
Sanford	-	6,000
Skiatook	1,140,000	1,140,000
Tenkiller Ferry	160,000	10,690,000
Toronto	1,220,000	23,630,000
Wister	4,700,000	55,650,000
TOTAL Arkansas Basin	32,075,000	577,563,000

Red River Basin

Altus	850,000	3,260,000
Arbuckle	110,000	330,000
Broken Bow	880,000	9,020,000
Clayton	980,000	990,000
Denison	16,980,000	57,590,000
Fort Cobb	50,000	300,000
Foss	210,000	830,000
Hugo	1,830,000	5,400,000
Lake Kemp	80,000	2,930,000
Pat Mayse	650,000	3,270,000
Mountain Park	65,000	390,000
Pine Creek	970,000	7,520,000
Waurika	1,840,000	3,990,000
TOTAL Red Basin	25,495,000	95,820,000
GRAND TOTALS	57,570,000	673,383,000

7. Lake Attendance.

a. Albuquerque District. The following is a listing of attendance for Section 7 and Corps projects in the Albuquerque District.

Project Attendance in Thousands

Project	Year 1978	1979	1980	1981	1982
Abiquiu	138.2	104.2	406.1	161.8	233.0
Cochiti	521.2	768.0	496.9	335.7	429.0
Conchas	305.9	189.7	437.5	258.6	159.0
Galisteo	4.2	10.2	2.7	3.1	3.0
Jemez Canyon	31.2	39.6	35.9	31.4	10.0
John Martin	248.0	250.2	670.2	522.9	613.0
Santa Rosa	---	---	5.1	59.7	109.0
Trinidad	---	---	279.4	351.4	450.0
Two Rivers	4.6	4.8	4.2	4.1	4.0
Pueblo	502.6	581.4	598.0	701.6	604.9
Platoro	3.0	2.9	3.6	2.6	2.5
Sumner	78.2	87.0	141.0	202.1	203.0

b. Fort Worth District. The following is a listing of lake attendance for both Corps' and Section 7 Projects for Fiscal Years 1978 through 1982.

TOTAL PERSONS
VISITING PROJECTS

Project	1982	1981	1980	1979	1978
Bardwell	1,000,308	985,812	727,143	681,260	599,682
Belton	2,449,310	4,083,197	2,490,074	3,976,219	2,620,201
Benbrook	2,007,943	2,078,136	2,010,460	1,940,960	2,514,846
Canyon	1,947,624	1,790,585	1,354,714	1,586,944	2,054,827
Georgetown	821,270	519,048			
Granger	284,043	195,848			
Grapevine	4,231,149	5,721,424	5,419,571	4,905,652	5,204,433
Hords Creek	829,561	520,119	358,553	334,602	495,851
Lake O' The Pines	4,979,192	3,981,742	3,973,739	3,854,740	
Lavon	2,861,682	2,887,615	2,500,569	2,452,543	2,541,252
Lewisville	6,701,115	8,997,119	4,953,097	6,458,768	6,726,223
Navarro Mills	1,203,233	1,172,009	1,127,316	1,004,324	941,929
Proctor	787,569	1,040,331	1,005,287	1,023,212	997,290
Sam Rayburn	3,210,221	2,473,397	2,638,415	2,129,867	2,187,020
O. C. Fisher	1,690,258	912,716	932,805	992,552	1,067,745
Somerville	3,391,749	3,170,970	2,529,426	2,387,527	2,485,116
Stillhouse Hollow	981,487	1,176,788	872,593	1,005,671	1,030,246
Town Bluff	605,069	666,254	585,068	619,499	621,074
Waco	4,198,419	4,079,208	3,386,210	2,832,604	2,357,481
Whitney	2,579,171	3,093,766	2,031,536	2,297,833	2,758,938
Wright Patman	4,652,589	4,497,648	4,521,235	3,094,800	
Twin Buttes	Not Available				
Marshall Ford	Not Available				

c. Galveston District. N/A

d. Little Rock District. Lake attendance for all Little Rock District lakes by calendar year is as follows:

1978 - 36,857,000; 1979 - 35,187,800; 1980 - 37,568,800
1981 - 39,848,600; 1982 - 43,400,000 (estimated)

e. Tulsa District. The following is a listing of lake attendance figures for Calendar Years 1978 through 1981. Lake attendence data are not available for FY82; however, it will be very similar to the 1981 amounts.

ATTENDANCE IN THOUSANDS

Lake	1978	1979	1980	1981
Great Salt Pl.	930.4	991.6	719.7	582.7
Fort Supply	674.5	731.6	720.0	517.1
Canton	3,017.7	2,841.8	3,416.5	2,446.1
Hulah	667.9	580.4	531.0	422.0
Tenkiller Ferry	4,063.8	4,594.1	3,675.8	3,442.1
Wister	1,087.4	1,219.0	941.4	969.4
Keystone	4,179.5	4,155.7	4,112.7	4,601.1
Oologah		2,144.2	1,991.6	2,629.1
Fort Gibson	7,227.7	4,451.0	3,038.6	4,403.7
Fall River	433.5	371.8	277.1	156.7
Toronto	419.9	357.2	312.9	226.4
Elk City	508.0	292.7	294.9	247.8
Optima	32.6	37.2	58.0	121.5
Pat Mayse	713.7	1,218.9	1,009.4	460.5
Eufaula	7,242.0	6,455.0	4,240.3	4,114.5
Heyburn	501.0	708.6	420.0	274.3
Hugo	1,020.0	1,122.9	901.8	917.1
Lake Texoma	11,615.8	11,455.1	12,078.2	12,400.1
Waurika	215.6	251.8	404.1	517.5
Millwood	1,855.5	2,149.0	2,042.3	*
John Redmond	455.0	277.1	380.2	540.0
Council Grove	718.9	648.7	449.3	422.4
Broken Bow	1,169.0	897.8	878.3	970.6
Gillham	238.3	159.7	158.9	*
Marion	693.5	420.2	415.2	329.7
Pine Creek	472.0	937.7	821.5	944.1
Robt S. Kerr	1,833.7	1,404.4	1,133.3	1,577.6
W D Mayo L + D	296.0	301.7	229.0	264.0
Chouteau L + D	533.0	516.6	396.6	368.0
New Graham L + D	645.7	500.4	606.5	504.6
Webbers Falls	1,242.7	993.9	749.2	936.0
Birch	110.8	225.0	347.7	423.2
DeQueen	301.1	252.6	199.9	*
Dierks	201.5	186.5	189.6	*
Kaw	1,796.0	1,657.7	1,469.7	1,672.7
District Total	58,925.4	55,509.6	49,611.2	48,453.2

8. Water Supply Storage.

a. Albuquerque District. Abiquiu, Cochiti, Galisteo, Jemez Canyon and Two Rivers Projects do not have storage allocated for water supply. Abiquiu did store water for the city of Albuquerque during FY 81 and FY82 within the sediment allocation space. The following is a listing of those reservoirs with space allocated for water supply.

Storage in Thousands of Acre-Feet

Project	Storage Allocated	Amount Contracted	Number of Contracts	Water Supplied FY81	Water Supplied FY82
Conchas	259			57,200	70,900
John Martin	345			102,300	71,400
Santa Rosa	200			6,900	71,900
Trinidad	20			44,800 1/	17,500

1/ 24,800 acre-feet from allocated sediment space.

b. Fort Worth District. Water Supply information per project is tabulated as follows:

Project Name	Storage Contracted (Ac-Ft)	Storage Allocated (Ac-Ft)	Number of Contracts (Users)
B. A. Steinhagen Lake	1/	1/	1
Bardwell Lake	21,400	42,800	1
Belton Lake	372,700	372,700	2
Benbrook Lake	23,708	23,708 2/	2
Canyon Lake	366,400	366,400	1
Georgetown Lake	101	29,200	1
Granger Lake	0	37,900	1
Grapevine Lake	161,250	161,250	3
Hords Creek Lake	5,780	5,780	1
Lake O' The Pines	250,000	250,000	1
Lavon Lake	220,000	220,000 3/	1
Lewisville Lake	436,000	436,000	2
Navarro Mills Lake	53,200	53,200	1
O.C. Fisher Lake	80,400	80,400	1
Proctor Lake	31,400	31,400	1
Sam Rayburn Reservoir	43,000	43,000	2
Somerville Lake	143,900	143,900	1
Stillhouse Hollow Lake	204,900	204,900	1
Waco Lake	104,100	104,100	2
Whitney Lake	50,000	50,000	1
Wright Patman Lake	91,263	91,263	1

1/ LNVA is permitted to withdraw from B.A. Steinhagen Lake not to exceed 2,000 CFS. This lake acts as a reregulation dam to Sam Rayburn Reservoir.

2/ Remaining 48,792 ac-ft of navigation storage is in the process of being negotiated with water user.

3/ NTMWD has given assurances for an additional 160,000 ac-ft of storage in Lavon Lake.

c. Galveston District. N/A.

d. Little Rock District. The following is a summary of water supply contracts and usage in FY 81 and 82 by project.

WATER SUPPLY USAGE SUMMARY

Project	Amount of Storage Allocated (AC-Ft)	Amount Contracted (AC-Ft)	Number of Contracts	Amount of Water Supplied (AC-Ft) FY81	FY82
Beaver Lake	117,000	40,000	2	24,857	25,369
Greers Ferry Lake	3,215	3,215	3	1,313	1,523
Norfork Lake	2,400	2,400	1	1,736	1,908
Nimrod Lake	33	33	1	79	71
Dierks Lake	10,600	200	1	218	234
Millwood Lake	150,000	28,300	1	43,768	42,443
Glinam Lake	20,600	600	1	0	246
DeQueen Lake	17,900	0*	0	0	0

* Contract to be finalized in FY83.

e. Tulsa District. Storage allocated to water supply totals 3,753,700 acre-feet in the Tulsa District. The Corps has 2,136,680 acre-feet in 31 projects while the Section 7 projects totaled 1,617,020 acre-feet in 10 projects. The following is a project listing showing yield, amount contracted, number of contracts, and usage.

SECTION 7 PROJECTS

Project (5)	Storage Allocated to Water Supply AF	Amount Withdrawn AF FY81	FY82
ARKANSAS RIVER BASIN			
Cheney	146980	19840	21937
Hudson	0	38809	0
Meredith	499700	66491	70192
Thunderbird	105900	11011	10923

RED RIVER BASIN

Altus	122900	20672	56138
Arbuckle	62570	7718	8024
Fort Cobb	78350	6468	5441
Foss	243670	3796	2838
Lake Kemp	268000	36278	29508
Mountain Park	88950	3809	4395

Corps of Engineers Projects

(October 1982)

PROJECT	STORAGE ALLOCATED TO WATER SUPPLY AF	ESTIMATED YIELD MGD	AMOUNT CONTRACTED AF	NUMBER OF CONTRACTS EXISTING	PENDING	AMOUNT SUPPLIED AF FY81	AMOUNT SUPPLIED AF FY82
ARKANSAS RIVER BASIN							
Arcadia (1)	23090	11	23090	1	0	0	0
Big Hill	25700	8.5	25700	1	0	0	0
Birch	7630	3	0	0	1	0	0
Candy (1)	41460	7.7	27030	1	1	0	0
Canton	107000 (2)	12	90000	2	0	54763	0
Copan (1)	7500	3	7500	2	0	0	0
Council Grove	24400	6	24400	1	0	0	0
El Dorado	142800	22.2	142800	1	0	0	0
Elk City	24300	10	24300	1	0	0	0
Eufaula	56000	50	4963	26	1	1432	2323
Fort Gibson	0	0	0	0	0	15181	16603
Fort Supply	400	0.2	402	2	0	246	200
Heyburn	2000 (3)	1.7	2000	3	0	1616	1225
Hulah	19800	12.4	17700	2	1	10822	10660
John Redmond	34900	24.5	34900	1	0	26629	0
Kaw	171200	167	90802	4	0	9802	0
Keystone	20000	20	18450	4	2	7511	5641
Marion	38300	3	38300	1	0	0	309
Oologah	342600	154	323580	8	2	48576	43714
Optima	76200	10	0	0	0	0	0
Skiatook (1)	64600	14	2060	1	2	0	0
Tenkiller	25400	16	18212	34	0	5131	5723
Toronto	400	0.1	400	2	0	76	71
Wister	9600	6	6400	2	1	2737	2671

RED RIVER BASIN

Broken Bow	152500	175	0	0	1	0	0
Hugo	47600	58	44890	3	0	3225	5796
Pat Mayse	109600	55	109600	1	0	11423	10325
Pine Creek	49400	84	28800	1	0	31075	33759
Sardis (1)	297200	140	297200	1	0	0	0
Texoma (4)	63700	44.7	41100	6	2	3730	0
Waurika	151400	26.2	41800	1	1	2730	4716

(1) Under construction
(2) Based on 1979 sedimentation survey. Data shown are for present operations providing 90000 acre-feet of storage.
(3) Estimated storage to be available in year 2000.
(4) Joint water supply and power provided between elevations 617.0 - 590.0.
(5) Estimated yield and contract information not available.

EXPERIMENT FORM (March 1976)
SOUTHWESTERN DIVISION

PROPOSED COOPERATIVE STREAM GAGING PROGRAM
FOR
FISCAL YEAR 1982
PART A

ALBUQUERQUE DISTRICT
JULY 1981 DATE OF PREPARATION
REPORTS CONTROL SYMBOL DAEN-CWE-14

STATIONS IN COOPERATIVE PROGRAM WITH USGS

GROSS DOLLARS SUPPORTING PROGRAM

PROPOSED TRANSFER TO USGS FROM CORPS

CLASS OF FUNDS	NUMBER OF STATIONS	USGS AER FUNDS	GEN INVES	CONST GEN	O & M	TOTAL	TOTAL CE/USGS PROGRAM	FOR CORPS OPERATION	OTHER USGS FUNDS	TOTAL FOR CORPS	TOTAL STATION SUPPORT
B	0	0	0	0	0	0	0	0	0	0	0
C	5*	$16,900	$7,850	0	0	$7,850	$24,750	0	0	$7,850	$24,750
E	38	0	0	0	$168,000	168,000	168,000	0	0	168,000	168,000
F	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	43	$16,900	$7,850	0	$168,000	$175850	$192,750	0	0	$175,850	$192,750

CLASS OF FUNDS:

B - Surveys

C - General Coverage

E - Operation and Maintenance

F - New Work or Construction

* 2 additional stations are partially funded

Table VI-1

EXPERIMENT FORM (March 1976)

[illegible]WESTERN DIVISION

PROPOSED COOPERATIVE STREAMFLOW DATA PROGRAM SURVEY
FOR
FISCAL YEAR 1982
PART A

FORT WORTH DISTRICT
30 June 1981 DATE OF PREPARATION
REPORTS CONTROL SYMBOL DAEN-CWE-14

STATIONS IN COOPERATIVE PROGRAM WITH USGS

G R O S S D O L L A R S S U P P O R T I N G P R O G R A M

PROPOSED TRANSFER TO USGS FROM CORPS

CLASS OF FUNDS	NUMBER OF STATIONS	USGS AFR FUNDS	GEN INVES	CONST GEN	O&M	TOTAL	TOTAL CE/USGS PROGRAM	FOR CORPS OPERATION	OTHER USGS FUNDS	TOTAL FOR CORPS	TOTAL STATION SUPPORT
B	[illegible]	0	17,390	0	0	17,390	17,390	670	0	18,060	18,060
C	11	9,130	0	0	0	0	9,130	1,080	0	1,080	10,210
D	[illegible]	0	0	2,920	0	2,920	2,920	480	0	3,400	3,400
E	53	0	0	0	457,240	457,240	457,240	26,760	16,550	484,000	500,550
F	20	0	0	80,330	0	80,330	80,330	4,260	4,400	84,590	88,990
SUBTOTAL	123*	9,130	17,390	83,250	457,240	557,880	567,010	33,250	20,950	591,130	621,210

*Note: Total is 2 less than shown
Stations 08110200 and 08050500
have dual funding.

PART B
TOTAL STREAMFLOW DATA PROGRAM FOR CORPS OF ENGINEERS

CLASS OF FUNDS	TOTAL CE/USGS PROGRAM	COST FOR CORPS OPERATION	NUMBER OF STATIONS	COST FOR CORPS STATIONS	CORPS GRAND TOTAL COST
B	17,390	670	NONE	NONE	18,060
C	9,130	1,080			10,210
D	2,920	480			3,400
E	457,240	26,760			484,000
F	80,330	4,260			84,590
TOTAL	567,010	33,250			600,260

CLASS OF FUNDS:

B - Surveys
C - General Coverage
D - Advance Engineering and Design
E - Operation and Maintenance
F - New Work or Construction

Table VI-11

FORM (March 1976)

Southwestern DIVISION

PROPOSED COOPERATIVE STREAMFLOW DATA PROGRAM SUMMARY

FOR

FISCAL YEAR 1982

PART A

Galveston DISTRICT

14 July 1981 DATE OF PREPARATION

REPORTS CONTROL SYMBOL EDEN-CWZ-14

STATIONS IN COOPERATIVE PROGRAM WITH USGS

SS - DS	NUMBER OF STATIONS	GROSS DOLLARS SUPPORTING PROGRAM — USGS AER FUNDS	PROPOSED TRANSFER TO USGS FROM CORPS — GEN INVES	CONST GEN	OSM	TOTAL	TOTAL CE/USGS PROGRAM	FOR CORPS OPERATION	OTHER USGS FUNDS	TOTAL FOR CORPS	TOT STATE
B	1*		4310			4310	4310	0	0	4310	4310
C	2*	5070				0	5070	0	0	0	5070
D	0					0	0	0	0	0	0
E	32				122240	122240	122240	25370	8570	147610	156180
F	2			2820		2820	2820	1020	0	3840	3840
SUBTOTAL	36	5070	4310	2820	122240	129370	134440	26390	8570	155760	169400

PART B

TOTAL STREAMFLOW DATA PROGRAM FOR CORPS OF ENGINEERS

CLASS OF FUNDS	TOTAL CE/USGS PROGRAM	COST FOR CORPS OPERATION	NUMBER OF INDEPENDENT STATIONS	COST FOR CORPS STATIONS	CORPS STATE TOTAL COST
B	4310	0			4310
C	5070	0			5070
E	122240	25370			147610
F	2820	1020			3840
TOTAL	134440	26390			160830

CLASS OF FUNDS:

B - Surveys
C - General Coverage
E - Operation and Maintenance
F - New Work or Construction

EXPERIMENTAL FORM (MARCH 1976)

Southwestern DIVISION

PROPOSED COOPERATIVE STREAMFLOW DATA PROGRAM SUMMARY
FOR
FISCAL YEAR 1982
PART A

LITTLE ROCK DISTRICT
15 July 1981 DATE OF PREPARATION
REPORTS CONTROL SYMBOL DAEN-CWE-14

STATIONS IN COOPERATIVE PROGRAM WITH USGS

GROSS DOLLARS SUPPORTING PROGRAM
PROPOSED TRANSFER TO USGS FROM CORPS

CLASS OF FUNDS	NUMBER OF STATIONS	USGS AER FUNDS	GEN INVES	CONST GEN	O&M	TOTAL	TOTAL CE/USGS PROGRAM	FOR CORPS OPERATION	OTHER USGS FUNDS	TOTAL FOR COPPS	TOTAL STATION SUPPORT
B	6	0	18,330	0	0	18,330	18,330	0	0	18,330	18,330
C	7	11,120	14,905	0	0	14,905	26,025	6,840	0	21,745	32,865
E	58	0	0	0	220,885	220,885	220,885	99,190	47,940	320,075	368,015
SUBTOTAL	71	11,120	33,235	0	220,885	254,120	265,240	106,030	47,940	360,150	419,210

PART B--
TOTAL STREAMFLOW DATA PROGRAM FOR CORPS OF ENGINEERS

CLASS OF FUNDS	TOTAL CE/USGS PROGRAM	COST FOR CORPS OPERATION	INDEPENDENT NUMBER OF STATIONS	COST FOR CORPS STATIONS	CORPS GRAND TOTAL COST
B	18,330	0	0	0	18,330
C	26,025	6,840	0	0	32,865
E	220,885	99,190	35	69,520	389,595
TOTAL	265,240	106,030	35	69,520	440,790

CLASS OF FUNDS:

B-Surveys
C-General Coverage
D-Advance Engineering and Design
E-Operation and Maintenance
F-New Work or Construction

EXPERIMENT FORM (March 1976)

Southwestern DIVISION

PROPOSED COOPERATIVE STREAMFLOW DATA PROGRAM SUMMARY
FOR
FISCAL YEAR 1982
PART A

Tulsa DISTRICT

June 29, 1981 DATE OF PREPARATION

REPORTS CONTROL SYMBOL DAEN-CWE-14

STATIONS IN COOPERATIVE PROGRAM WITH USGS

CLASS OF FUNDS	NUMBER OF STATIONS	GROSS DOLLARS SUPPORTING PROGRAM — USGS AER FUNDS	PROPOSED TRANSFER TO USGS FROM CORPS — GEN INVES	CONST GEN	O&M	TOTAL	TOTAL CE/USGS PROGRAM	FOR CORPS OPERATION	OTHER USGS FUNDS	TOTAL FOR CORPS	TOTAL STATION SUPPORT
C	25	[illegible]					[illegible]	6,300	67,720	6,300	[illegible]
D	7			57,760		57,760	57,760	1,710	4,930	59,470	64,400
E	[illegible]				[illegible]	[illegible]	[illegible]	146,370	466,270	[illegible]	[illegible]
F	9			55,450		55,450	55,450	4,080		59,530	59,530
TOTAL	[illegible]*	5,300		113,210	449,300	[illegible]	567,810	158,460	538,920	[illegible]	1,265,190

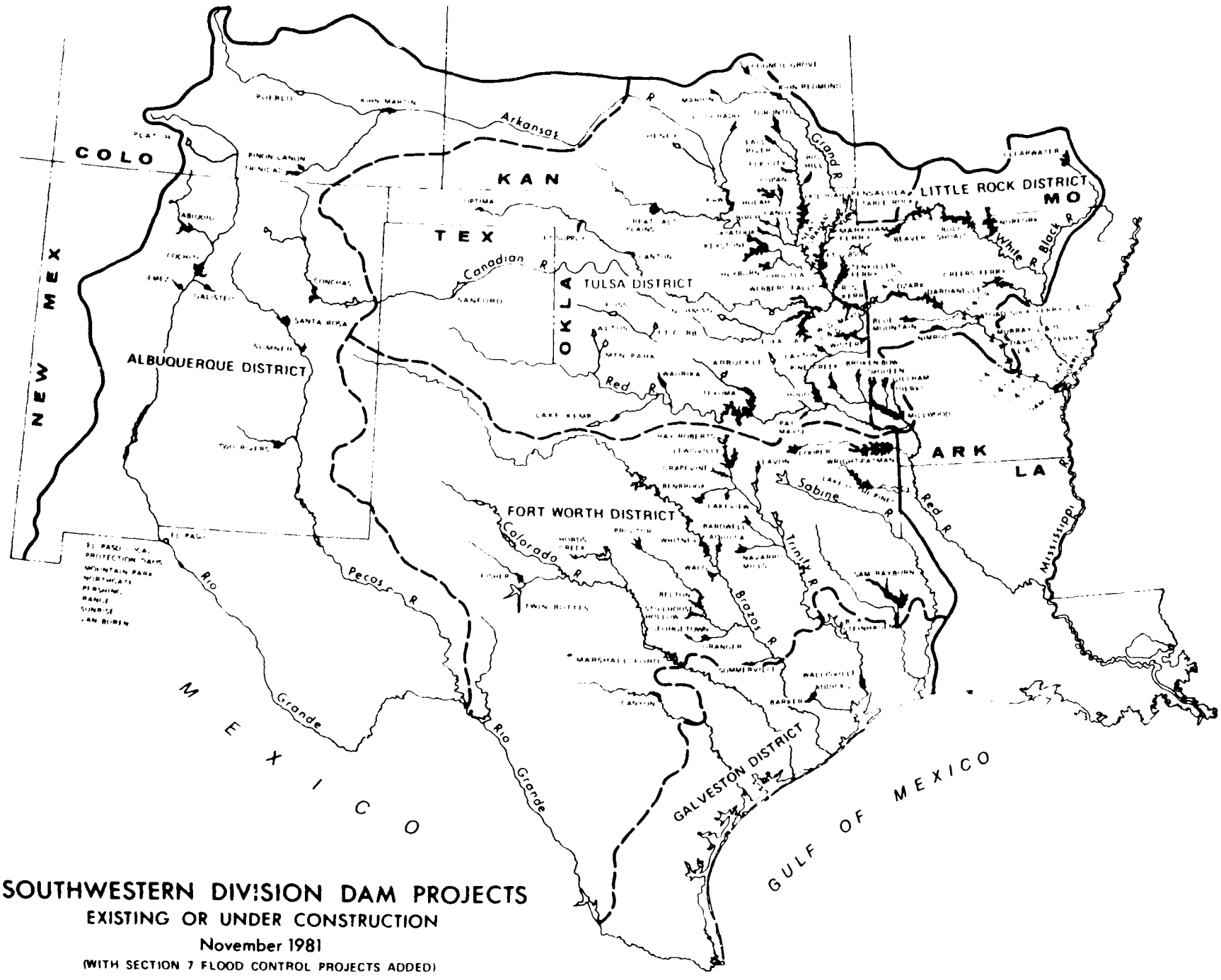
* [illegible] are funded under multiple [illegible], [illegible] total number of stations in CWE.

PART B
TOTAL STREAMFLOW DATA PROGRAM FOR CORPS OF ENGINEERS

CLASS OF FUNDS	TOTAL CE/USGS PROGRAM	COST FOR CORPS OPERATION	NUMBER OF INDEPENDENT STATIONS	COST FOR CORPS STATIONS	CORPS GRAND TOTAL COST
C		6,300	0	0	6,300
D	57,760	1,710	0	0	59,470
E	454,600	146,370	40	43,180	644,150
F	55,450	4,080	0	0	59,530
TOTAL	567,810	158,460	40	43,180	769,450

SECTION VII - RESERVOIR DATA SUMMARY

1. SWD Map
2. Index By Basins
3. Index in Alphabetical Order
4. Data Tables



SOUTHWESTERN DIVISION DAM PROJECTS

EXISTING OR UNDER CONSTRUCTION

November 1981

(WITH SECTION 7 FLOOD CONTROL PROJECTS ADDED)

LAKE SUMMARY TABLE INDEX

LAKE NAME	STREAM	DIST	STATE	YR COMP	POOL ELEVATION CONS	POOL ELEVATION FC	CAPACITY** 1000 AF CONS	CAPACITY** 1000 AF FC	PAGE NO
			WHITE RIVER BASIN						
Beaver	White	LRD	AR	66	1120.0	1130.0	1652	300	1
Table Rock	White	LRD	AR/MO	58	915.0	931.0	2702	760	1
Bull Shoals	White	LRD	AR/MO	52	654.0	695.0	3048	2360	2
Norfork	North Fork	LRD	AR/MO	45	552.0	580.0	1251	732	2
Clearwater	Black	LRD	MO	45	494.0	567.0	22	391	3
Greers Ferry	Little Red	LRD	AR	62	461.0	487.0	1119	954	3
			ARKANSAS RIVER BASIN						
Pueblo	Arkansas	AD*	CO	74	4680.6	4895.7	264	93	4
Trinidad	Purgatorie R	AD	CO	78	6226.4	6260.0	64	58	4
John Martin	Arkansas	AD	CO	51	3851.0	3870.0	351	270	5
Cheney	N F Ninnescah	TD*	KS	64	1421.6	1429.0	167	81	5
Winfield	Walnut	TD	KS	80	1339.0	1347.5	157	79	6
Kaw	Arkansas	TD	OK/KS	76	1010.0	1044.5	429	919	6
Great Salt Plains	Salt Fork Ark	TD	OK	41	1125.0	1138.5	31	240	7
Keystone	Arkansas	TD	OK	64	723.0	754.0	618	1219	7
Keyburn	Polecat Cr	TD	OK	50	761.5	784.0	7	48	8
Toronto	Verdigris R	TD	KS	60	901.5	931.0	22	176	8
Fall River	Fall	TD	KS	49	948.5	987.5	24	235	9
Elk City	Elk	TD	KS	60	792.0	825.0	34	256	9
Big Hill	Big Hill Cr	TD	KS	81	858.0	867.5	27	13	10
Oologah	Verdigris R	TD	OK	63	638.0	661.0	553	966	10
Hulah	Caney	TD	OK/KS	51	733.0	765.0	36	258	11
Copan	E Caney	TD	OK/KS	80	710.0	732.0	43	184	11
Birch	Birch Creek	TD	OK	79	750.5	774.0	19	39	12
Skiatook	Hominy Creek	TD	OK	82	714.0	729.0	305	182	12
Newt Graham LD 18	Verdigris	TD	OK	70	532.0	-	24	0	13
Chouteau LD 17	Verdigris	TD	OK	70	511.0	-	23	0	13
Council Grove	Neosho R	TD	KS	65	1270.0	1289.0	38	76	14
Marion	Cottonwood R	TD	KS	68	1350.5	1358.5	86	60	14
John Redmon	Neosho R	TD	KS	64	1039.0	1068.0	82	503	15
Grand Lake (Pensacola)	Neosho (Grand)	TD*	OK	40	745.0	755.0	1672	525	15
Lake Hudson	Neosho (Grand)	TD*	OK	64	619.0	636.0	200	244	16
Fort Gibson	Neosho (Grand)	TD	OK	52	554.0	582.0	365	919	16
Webbers Falls LD 16	Arkansas	TD	OK	70	490.0		165	0	17
Tenkiller Ferry	Illinois R	TD	OK	52	632.0	667.0	654	577	17
Conchas	Canadian R	AD	NM	39	4201.0	4218.0	330	198	18
Meredith (Sanford)	Canadian R	TD*	TX	65	2941.3	2965.0	945	463	18
Thunderbird (Norman)	Little R	TD*	OK	65	1039.0	1049.4	120	77	19
Optima	N Canadian R	TD	OK	78	2763.5	2779.0	129	101	19
Fort Supply	Wolf Cr	TD	OK	42	2004.0	2028.0	14	87	20
Canton	N Canadian R	TD	OK	48	1615.2	1638.0	116	268	20
Eufaula	Canadian R	TD	OK	64	585.0	597.0	2329	1470	21
R S Kerr LD 15	Arkansas	TD	OK	70	460.0	-	494	0	21
W D Mayo LD 14	Arkansas	TD	OK	70	413.0	-	16	0	22
Wister	Poteau R	TD	OK	49	471.6	502.5	27	400	22
LD 13	Arkansas	LRD	AR/OK	69	392.0	-	34	0	23
Ozark-J T LD 12	Arkansas	LRD	AR	69	372.0	-	148	0	23
Dardanelle LD 10	Arkansas	LRD	AR	64	338.0	-	486	0	24
Blue Mountain	Petit Jean	LRD	AR	47	384.0	419.0	25	233	24
LD 9	Arkansas	LRD	AR	69	287.0	-	65	0	25
Toad Suck Ferry LD 8	Arkansas	LRD	AR	69	265.0	-	35	0	25
Nimrod	Fourche La Fave	LRD	AR	42	342.0	373.0	29	307	26
Murray LD 7	Arkansas	LRD	AR	69	249.0	-	87	0	26
D D Terry LD 6	Arkansas	LRD	AR	68	231.0	-	50	0	27
LD 5	Arkansas	LRD	AR	68	213.0	-	65	0	27
LD 4	Arkansas	LRD	AR	68	196.0	-	70	0	28
LD 3	Arkansas	LRD	AR	68	182.0	-	46	0	28
LD 2	Arkansas	LRD	AR	67	162.0	-	110	0	29
LD 1	Arkansas	LRD	AR	67	142.0	-	2	0	29

* Section 7 Flood Control Projects

** Includes dead storage, conservation, water supply, power, irrigation, etc.

RED RIVER BASIN									
Altus	N F Red	FD*	OK	46	1559.0	1562.0	141	21	30
Tom Steed (Mtn. Park)	W Otter Creek	FD*	OK	75	1411.0	1414.0	96	20	30
Lake Kemp	Wichita R	FD*	TX	77	1144.0	1156.0	299	225	31
Waurika	Beaver Creek	FD	OK	76	951.4	962.5	203	140	31
Foss	Washita	FD*	OK	61	1562.0	1668.6	256	181	32
Fort Cobb	Cobb Creek	FD*	OK	59	1342.0	1354.8	78	64	32
Arbuckle	Rock Creek	FD*	OK	67	872.0	885.3	72	36	33
Lake Texoma	Red	FD	TX/OK	43	617.3	640.0	2830	2660	33
Pat Mayse	Sanders Creek	FD	TX	68	451.0	460.5	124	65	34
Sardis	Jack Fork Creek	FD	OK	84	599.0	607.0	302	128	34
Hugo	Kiamichi R	FD	OK	74	404.5	437.5	157	809	35
Pine Creek	Little R	FD	OK	69	443.5	480.0	76	368	35
Broken Bow	Mountain Fork	FD	OK	69	599.5	627.5	919	450	36
DeQueen	Rolling Fork	LRD	AR	77	437.0	473.5	35	101	37
Gillham	Cossatot	LRD	AR	76	502.0	569.0	33	189	37
Dierks	Saline R	LRD	AR	76	526.0	557.5	30	67	38
Millwood	Little R	LRD	AR	66	259.2	287.0	207	1653	38
Wright Patman	Sulphur River	FWD	TX	56	220.0	259.5	143	2509	39
Lake O the Pines	Cypress Creek	FWD	TX	60	228.5	249.5	251	580	39
NECHES RIVER BASIN									
Sam Rayburn	Angelina R	FWD	TX	65	164.4	173.0	2898	1009	40
B A Steinhagen	Neches R	FWD	TX	51	81.0	83.0	70	24	40
TRINITY RIVER BASIN									
Benbrook	Clear Fork	FWD	TX	52	694.0	724.0	88	170	41
Lewisville	Elm Fork	FWD	TX	54	515.0	532.0	465	525	41
Grapevine	Denton Cr	FWD	TX	52	535.0	560.0	189	248	42
Lavon	East Fork	FWD	TX	77	492.0	503.5	457	277	42
Navarro Mills	Richland Cr	FWD	TX	68	424.5	443.0	63	149	43
Bardwell	Waxahachie Cr	FWD	TX	65	421.0	439.0	55	85	43
SAN JACINTO RIVER BASIN									
Barker	Buffalo Bayou	GD	TX	45	-	107.0	0	207	44
Addicks	Buffalo Bayou	GD	TX	46	-	114.0	0	205	44
BRAZOS RIVER BASIN									
Whitney	Brazos	FWD	TX	51	533.0	571.0	627	1372	45
Waco	Bosque	FWD	TX	65	455.0	500.0	153	574	45
Proctor	Leon R	FWD	TX	63	1162.0	1197.0	59	315	46
Belton	Leon R	FWD	TX	54	594.0	631.0	458	640	46
Stillhouse H	Lampasas R	FWD	TX	68	622.0	666.0	236	395	47
Georgetown	N F San Gabriel	FWD	TX	79	791.0	834.0	37	93	47
Granger	San Gabriel	FWD	TX	79	504.0	524.0	66	179	48
Somerville	Yegua Cr	FWD	TX	67	238.0	258.0	160	347	48
COLORADO RIVER BASIN									
Twin Buttes	S&M Concho R	FWD*	TX	63	1940.2	1969.1	186	454	49
O C Fisher	N Concho R	FWD	TX	52	1908.0	1938.5	119	277	49
Hords Cr	Hords Cr	FWD	TX	48	1900.0	1920.0	9	17	50
Marshall Ford	Colorado R	FWD*	TX	40	681.0	714.0	1172	780	50
GUADALUPE RIVER BASIN									
Canyon	Guadalupe R	FWD	TX	64	909.0	943.0	386	355	51
RIO GRANDE BASIN									
Platoro	Conejos R	AD*	CO	51	10027.5	10034.0	54	6	52
Abiquiu	Rio Chama	AD	NM	63	-	6283.5	0	568	52
Cochiti	Rio Grande	AD	NM	75	5321.45	5460.5	47	539	53
Galisteo	Galisteo Cr	AD	NM	70	-	5608.0	0	90	53
Jemez Canyon	Jemez R	AD	NM	53	5160.0	5232.0	2	104	54
Santa Rosa	Pecos R	AD	NM	80	4776.5	4797.0	267	182	54
Sumner	Pecos R	AD*	NM	37	4261.0	4282.0	47	86	55
Two Rivers	Rio Hondo	AD	NM	63	-	4032.0	0	168	55

* Section 7 Flood Control Projects

** Includes dead storage, conservation, water supply, power, irrigation, etc.

ALPHABETICAL INDEX

SUMMARY OF LAKE CONDITIONS FOR WATER YEAR 1982

WHITE RIVER BASIN

BEAVER LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1968 thru 1982	47.5	104.5	95.1	80.2	99.0	187.7	158.3	125.8	93.6	25.8	14.8	31.1	1,063.4
WY 1982	38.7	57.1	19.1	165.8	139.4	89.2	70.2	112.7	209.0	15.4	11.1	0.1	927.8
Releases (1,000 AC. FT.)													
Avg 1968 thru 1982	29.3	56.7	69.4	88.9	81.8	80.3	104.5	98.0	88.7	90.3	91.5	56.9	936.3
WY 1982	19.8	2.3	45.3	112.3	32.6	79.5	103.7	67.2	104.6	80.3	83.0	45.7	776.3
Basin Rainfall (inches)													
Avg 1968 thru 1982	4.2	3.6	2.9	2.1	2.0	4.0	3.9	4.6	4.4	2.7	2.8	3.8	41.0
WY 1982	5.8	2.8	0.9	6.0	1.2	2.9	3.7	5.4	8.0	1.9	4.0	1.3	43.9
Deviation	+1.6	-0.8	-2.0	+3.9	-0.8	-1.1	-0.2	+0.8	+3.6	-0.8	+1.2	-2.5	+2.9
Pool Elevation													
End of Month	1,112.26	1,114.10	1,112.86	1,114.66	1,118.35	1,118.35	1,116.72	1,117.87	1,121.16	1,118.39	1,115.35	1,113.27	
Maximum	1,112.26	1,114.10	1,114.28	1,114.66	1,118.67	1,118.94	1,118.35	1,118.62	1,121.97	1,121.18	1,118.39	1,115.35	
Minimum	1,111.06	1,112.26	1,112.86	1,109.09	1,114.66	1,117.60	1,115.54	1,116.72	1,117.87	1,118.39	1,115.27	1,113.27	
Pool Content EOM (1,000 AC. FT.)	1,443.4	1,491.2	1,459.0	1,506.1	1,605.9	1,605.9	1,561.3	1,592.6	1,685.1	1,607.0	1,524.4	1,469.6	

TABLE ROCK LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1961 thru 1982	97.6	211.0	204.3	209.4	198.5	357.3	382.2	368.4	229.8	141.6	118.9	103.3	2,622.3
WY 1982	90.2	95.3	103.6	379.1	336.7	228.8	194.0	165.1	374.8	139.2	206.8	69.7	2,383.3
Releases (1,000 AC. FT.)													
Avg 1961 thru 1982	114.6	181.9	205.2	218.8	209.8	259.0	291.4	319.6	211.8	209.3	160.5	118.7	2,500.6
WY 1982	26.4	54.7	78.8	255.4	451.6	306.6	139.1	44.7	323.9	161.2	124.1	86.3	2,052.8
Intervening Basin Rainfall (inches)													
Avg 1961 thru 1982	4.4	3.8	2.9	2.0	1.6	4.0	4.1	4.4	4.9	3.0	3.5	4.0	42.6
WY 1982	6.3	2.6	1.3	5.3	1.1	2.0	3.0	4.0	6.7	1.8	7.3	1.1	42.5
Deviation	+1.9	-1.2	-1.6	+3.3	-0.5	-2.0	-1.1	-0.4	+1.8	-1.2	+3.8	-2.9	-0.1
Pool Elevation													
End of Month	914.10	914.81	915.20	917.88	915.03	912.88	913.82	916.14	916.84	915.84	917.30	916.54	
Maximum	914.10	915.12	915.20	917.88	919.02	915.05	913.82	916.14	918.37	917.08	917.55	917.31	
Minimum	912.79	914.10	914.68	913.16	914.97	912.83	912.86	913.82	916.14	915.62	915.43	916.43	
Po__ Content EOM (__ __ __)	2,663.3	2,693.8	2,710__	2,827.7	2,703.3	2,612.0	2,651.4	2,751.2	,782.0	2,738.1	2,802.2	2,768.8	

WHITE RIVER BASIN

BULL SHOALS LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1953 thru 1982	139.2	248.5	274.4	272.4	310.8	474.7	501.3	573.8	346.7	382.4	196.3	159.5	3,880.0
WY 1982	74.7	91.4	107.8	476.0	625.0	430.8	202.6	157.0	478.0	222.3	243.4	110.1	3,210.1
Releases (1,000 AC. FT.)													
Avg 1953 thru 1982	214.1	190.1	234.7	294.8	275.9	306.2	354.9	391.5	311.3	390.1	334.3	244.3	3,542.2
WY 1982	15.6	8.3	6.0	98.1	561.6	518.7	126.7	59.8	322.6	265.3	140.4	136.2	2,259.3
Basin Rainfall (inches)													
Avg 1953 thru 1982	3.5	3.9	2.5	2.0	1.8	3.5	4.2	4.2	3.5	3.4	3.5	4.1	40.1
WY 1982	5.5	1.6	1.2	5.7	1.4	1.8	2.6	4.7	6.7	2.6	7.0	0.7	41.5
Deviation	+2.0	-2.3	-1.3	+3.7	-0.4	-1.7	-1.6	+0.5	+3.2	-0.8	+3.5	-3.4	+1.4
Pool Elevation													
End of Month	640.73	642.47	644.70	652.98	654.07	651.69	652.92	654.49	657.30	655.79	657.47	656.48	
Maximum	640.73	642.47	644.70	652.98	658.57	654.14	652.92	654.49	657.63	657.38	657.63	657.56	
Minimum	639.55	640.71	642.44	644.64	652.98	651.27	651.68	652.92	654.49	655.70	655.35	656.46	
Pool Content EOM (1,000 AC. FT.)	2,488.8	2,557.6	2,646.7	3,002.1	3,051.2	2,944.4	2,999.4	3,070.3	3,200.1	3,129.4	3,208.1	3,161.6	

NORFORK LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1946 thru 1982	47.7	84.9	97.3	119.8	125.3	180.0	189.8	191.7	105.1	76.8	48.3	46.0	1,312.7
WY 1982	32.8	29.7	26.9	135.0	169.6	95.6	83.1	120.3	119.9	66.4	38.2	27.4	944.9
Releases (1,000 AC. FT.)													
Avg 1946 thru 1982	67.1	67.8	87.9	115.4	113.8	55.9	126.7	63.3	106.6	118.1	111.9	85.2	1,119.7
WY 1982	19.6	4.1	34.8	36.4	82.6	124.1	111.7	62.3	0.4	63.4	128.8	81.7	749.9
Basin Rainfall (inches)													
Avg 1946 thru 1982	2.8	3.5	2.9	2.6	2.7	3.6	4.1	5.0	4.0	3.7	3.1	3.4	41.4
WY 1982	5.0	1.7	1.9	6.3	2.0	1.7	3.2	5.4	5.3	1.8	4.5	1.6	40.4
Deviation	+2.2	-1.8	-1.0	+3.7	-0.7	-1.9	-0.9	+0.4	+1.3	-1.9	+1.4	-1.8	-1.0
Pool Elevation													
End of Month	542.49	543.50	542.85	547.48	551.30	549.61	547.84	550.05	552.54	552.14	547.43	544.37	
Maximum	542.53	543.50	543.71	547.48	552.37	551.30	549.61	550.05	552.54	553.04	552.18	547.43	
Minimum	541.81	542.49	542.83	542.03	547.48	548.99	547.52	547.84	550.05	551.85	547.43	544.37	
Pool Content EOM (1,000 AC. FT.)	1,054.3	1,074.1	1,061.2	1,154.5	1,235.8	1,199.4	1,162.1	1,208.9	1,263.1	1,254.3	1,153.5	1,091.3	

WHITE RIVER BASIN

CLEARWATER LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1949 thru 1982	19.8	39.3	47.9	54.9	55.8	90.1	90.4	75.4	34.8	27.2	18.6	20.9	575.1
WY 1982	15.4	46.1	26.3	86.9	126.8	57.5	62.4	35.8	37.9	16.6	89.1	63.3	664.1
Releases (1,000 AC. FT.)													
Avg 1949 thru 1982	20.3	32.5	47.9	48.3	58.5	77.5	87.7	73.5	49.6	31.8	26.9	25.8	580.3
WY 1982	14.9	45.6	26.7	39.1	134.7	96.5	53.3	35.0	38.4	18.0	23.3	72.9	598.4
Basin Rainfall (inches)													
Avg 1949 thru 1982	2.7	3.6	3.1	2.7	2.7	4.0	4.2	4.7	3.7	3.8	3.5	3.4	42.1
WY 1982	4.3	3.8	1.8	6.6	1.7	2.3	4.1	2.8	5.3	1.8	4.5	1.6	40.6
Deviation	+1.6	-0.2	-1.3	+3.9	-1.0	-1.7	-0.1	-1.9	+1.6	-2.0	+1.0	-1.8	-1.5
Pool Elevation													
End of Month	494.20	494.37	494.09	514.00	511.40	494.12	499.00	499.04	498.41	497.28	520.26	517.54	
Maximum	494.51	502.10	495.33	514.00	522.43	511.40	499.09	499.21	499.35	491.41	520.26	521.24	
Minimum	494.08	494.19	494.01	493.87	511.40	493.97	494.04	497.91	497.65	497.13	497.26	515.46	
Pool Content EOM (1,000 AC. FT.)	22.2	22.5	22.1	69.8	61.4	22.1	30.8	30.8	29.6	27.5	92.7	82.2	

GREERS FERRY LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1965 thru 1982	33.9	93.8	149.2	120.0	133.0	236.2	206.1	145.2	62.4	11.9	8.5	31.9	1,232.1
WY 1982	3.0	4.6	6.5	128.1	92.4	63.8	72.2	34.3	50.7	9.5	3.5	0.0	468.6
Releases (1,000 AC. FT.)													
Avg 1965 thru 1982	40.2	46.9	79.2	130.1	116.2	118.8	125.1	128.2	92.4	106.1	94.6	56.5	1,134.3
WY 1982	12.6	4.5	31.0	35.9	154.3	129.2	150.2	90.5	73.5	51.8	5.7	27.7	766.9
Basin Rainfall (inches)													
Avg 1964 thru 1982	3.6	4.1	4.0	2.9	2.9	5.0	4.7	5.1	3.9	3.5	3.2	4.9	47.8
WY 1982	4.9	2.4	1.2	6.8	2.4	2.8	4.4	4.3	5.9	2.1	2.2	0.7	40.1
Deviation	+1.3	-1.7	-2.8	+3.9	-0.5	-2.2	-0.3	-0.8	+2.0	-1.4	-1.0	-4.2	-7.7
Pool Elevation													
End of Month	452.63	452.60	451.83	459.00	459.76	459.41	458.87	457.71	458.20	456.65	454.23	452.77	
Maximum	453.10	452.72	452.79	459.00	461.15	460.26	459.86	459.28	458.24	458.33	456.65	454.23	
Minimum	452.61	452.44	451.83	451.82	459.00	457.91	458.84	457.64	457.04	456.65	454.23	452.77	
Pool Content EOM (1,000 AC. FT.)	1,657.3	1,656.4	1,634.2	1,848.0	1,871.6	1,860.7	1,844.0	1,808.3	1,825.2	1,776.5	1,703.9	1,661.3	

PUEBLO DAM

INFLOWS (1000 AC-FT)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Avg 1894 thru 1982	21.7	22.4	21.1	19.8	16.4	15.6	23.5	67.2	129.2	87.3	56.8	26.2	492.2
FY 1982	11.2	10.2	11.0	13.4	14.1	13.5	6.8	18.4	69.2	56.9	53.3	33.6	311.7
Releases (1000 Ac-Ft)													
Avg 1966 thru 1982	8.2	7.3	4.6	4.2	4.3	12.1	19.5	29.0	89.2	43.8	26.4	11.5	234.0
FY 1982	8.3	6.8	2.2	2.8	2.8	6.8	13.1	22.5	59.0	59.3	48.2	31.6	263.3
Rainfall (Inches)													
Avg 1938 thru 1982	.73	.43	.46	.32	.41	.73	1.31	1.76	1.33	1.99	1.85	.80	12.16
FY 1982	.09	.00	.72	.27	.20	.33	.27	2.85	2.90	3.34	2.49	.37	13.83
Pool Elevation(EOM)	4799.00	4803.67	4814.00	4824.36	4833.66	4837.30	4829.61	4823.26	4826.46	4816.69	4816.65	4816.01	
Maximum	4799.00	4803.67	4814.00	4824.36	3833.66	4837.96	4837.29	4829.12	4826.46	4826.57	4819.58	4816.62	4837.96
Minumum	4798.56	4798.59	4804.00	4814.48	4824.71	4833.91	4829.61	4823.26	4823.04	4816.66	4815.85	4815.80	4798.56
Pool Content (EOM) (1000 AC-FT)	33.4	40.1	57.2	78.1	100.4	110.0	90.2	75.6	82.8	62.3	62.2	60.9	

TRINADAD LAKE

Inflows (1000 Ac-Ft)													
Avg 1978 thru 1982	1.7	1.3	1.5	.9	.9	1.0	1.9	10.5	11.8	9.0	10.2	5.7	61.0
FY 1982	3.3	2.0	1.8	1.4	1.3	1.4	2.0	5.6	11.3	6.2	16.4	11.6	64.5
Releases (1000 Ac-Ft)													
Avg 1978 thru 1982	1.3	.5	.4	.3	.4	.3	2.5	6.1	10.5	10.7	8.9	7.3	49.0
FY 1982	1.7	.0	.4	.1	.3	.0	5.4	9.3	9.4	11.3	12.9	11.7	62.4
Raintall (Inches)													
Avg 1978 thru 1982	.64	.79	.56	.61	.63	1.13	.67	3.10	2.15	2.25	3.57	1.77	19.57
FY 1982	.32	.51	.86	.34	.51	.16	.58	2.71	3.77	2.67	3.65	3.12	19.20
Pool elevation(EOM)	6210.27	6211.84	6213.00	6214.01	6214.93	6215.85	6212.47	6208.55	6209.73	6204.11	6207.14	6206.73	
Maximum	6210.27	6211.84	6213.00	6214.01	6214.93	6215.85	6215.93	6212.29	6210.04	6209.71	6207.25	6207.72	6215.93
Minumum	6208.88	6210.30	6211.87	6213.01	6214.0[illegible]	6214.98	6212.47	6208.55	6208.02	6203.02	6204.33	6206.63	6203.02
Pool Content (EOM) (1000 AC-FT)	47.0	48.8	50.1	51.3	52.3	53.4	49.5	45.3	46.5	40.7	43.8	43.4	

ARKANSAS RIVER BASIN

JOHN MARTIN RES.

Inflows (1000 Ac-Ft)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Avg 1943 thru 1982	6.6	6.1	6.5	7.6	6.9	6.9	6.9	14.6	46.3	35.9	28.4	9.2	194.6
FY 1982	3.6	4.8	9.6	10.5	9.5	8.4	3.5	9.1	35.1	38.3	44.1	35.2	211.7
Releases (1000 Ac-Ft)													
Avg 1921 thru 1982	13.0	6.0	4.4	4.2	3.7	3.4	23.4	32.4	47.4	40.1	42.7	20.3	240.6
FY 1982	6.8	.4	.1	.1	.1	.1	17.3	20.6	38.1	36.1	52.4	34.4	206.5
Rainfall (Inches)													
Avg 1943 thru 1982	.69	.41	.22	.23	.20	.56	.98	2.11	1.51	1.90	1.80	.80	11.41
FY 1982	.08	.19	.08	.01	.46	.30	.40	1.92	3.11	2.69	.36	1.47	11.07
Pool Elevation(EOM)	3796.38	3798.33	3801.93	3805.39	3808.08	3810.09	3805.36	3800.78	3799.07	3799.42	3794.86	3794.90	
Maximum	3798.08	3798.33	3801.93	3805.39	3808.08	3810.09	3810.26	3804.98	3802.67	3799.42	3800.78	3795.88	3810.26
Minumum	3796.38	3796.35	3798.43	3802.07	3805.54	3808.18	3805.36	3800.76	3799.07	3796.00	3794.61	3794.30	3794.30
Pool Content(EOM) (1000 Ac-Ft)	13.8	17.8	26.9	36.9	45.7	52.6	36.9	23.9	19.5	20.4	10.9	10.9	

5

ARKANSAS RIVER BASIN

CHENEY RESERVOIR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1938 THRU 1981	11.66	7.53	6.44	6.63	8.27	13.31	14.69	18.68	17.71	9.29	5.22	9.33	128.8
FY 1982	11.22	26.61	6.68	5.70	11.14	11.71	4.99	26.64	47.74	8.21	4.55	2.37	167.6
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	5.40	21.22	3.64	3.58	3.59	7.94	9.88	14.70	14.18	2.31	1.81	1.99	90.2
FY 1982	29.10	27.94	4.23	0.00	0.00	0.00	0.00	0.00	30.67	13.20	0.00	0.00	105.1
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.12	1.30	0.90	0.66	0.92	1.54	2.50	3.60	4.10	3.14	2.97	3.09	26.84
FY 1982	2.31	3.73	0.00	0.17	0.11	0.92	0.07	5.80	7.94	3.20	0.94	1.45	26.64
DEVIATION	0.19	2.43	-0.90	-0.49	-0.81	-0.62	-2.43	2.20	3.84	0.06	-2.03	-1.64	-0.20
POOL ELEVATION													
END OF MONTH	1416.75	1416.50	1416.62	1417.13	1418.35	1419.35	1419.36	1421.77	1423.01	1421.60	1421.08	1420.63	
MAXIMUM	1419.27	1417.67	1416.63	1417.13	1418.35	1419.35	1419.45	1421.77	1424.26	1423.01	1421.61	1421.10	
MINIMUM	1415.38	1416.33	1416.33	1416.62	1417.13	1418.35	1419.35	1419.36	1421.77	1421.58	1420.94	1420.60	
POOL CONTENT-EOM (1000AC.FT)	124.90	122.95	123.88	127.90	137.92	146.50	146.59	168.69	180.84	167.07	162.13	157.99	

ARKANSAS RIVER BASIN

ELDORADO	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1921 THRU 1978	5.00	4.40	2.80	2.70	2.80	6.20	10.20	11.80	14.40	7.40	3.40	5.50	76.6
FY 1982	0.64	6.60	2.13	9.32	10.45	6.72	1.45	46.34	27.48	5.68	0.02	0.58	117.4
RELEASES(1000AC.FT.)													
LAKE HAS NOT FILLED													
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.45	1.66	1.12	0.85	0.98	1.87	2.97	4.40	4.74	3.71	3.19	3.92	31.86
FY 1982	4.80	4.04	0.00	0.46	0.17	1.33	0.37	8.54	3.34	1.43	1.18	1.39	27.05
DEVIATION	2.35	2.38	-1.12	-0.39	-0.81	-0.54	-2.60	4.14	-1.40	-2.28	-2.01	-2.53	-4.81
POOL ELEVATION													
END OF MONTH	1290.00	1302.90	1304.64	1309.81	1313.75	1315.87	1316.18	1327.45	1327.30	1326.58	1325.92	1325.30	
MAXIMUM	1290.00	1302.90	1304.65	1309.81	1313.75	1315.87	1316.18	1327.45	1330.80	1327.80	1326.58	1325.92	
MINIMUM	1289.70	1290.00	1302.90	1304.64	1309.81	1313.75	1315.87	1316.18	1327.13	1326.58	1325.92	1325.30	
POOL CONTENT-EOM													
(1000AC.FT)	1.31	7.75	9.87	19.23	29.46	35.74	36.70	81.87	81.10	77.50	74.28	71.37	

ARKANSAS RIVER BASIN

KAW LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1922 THRU 1981	158.53	125.65	84.51	85.12	96.99	171.76	249.25	301.29	342.30	239.71	131.96	141.41	2128.5
FY 1982	93.46	338.92	76.76	51.17	190.02	180.79	71.60	477.84	793.22	211.95	52.81	28.60	2567.1
RELEASES(1000AC.FT.)													
AVG 1977 THRU 1982	50.08	193.81	65.05	54.78	96.19	197.42	196.73	191.47	359.94	211.70	59.55	108.81	1785.5
FY 1982	85.20	306.08	73.84	47.54	178.46	191.33	64.05	224.82	809.18	418.20	82.62	16.69	2498.0
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.40	1.64	1.12	0.84	1.02	1.80	2.92	4.31	4.50	3.60	3.20	3.70	31.05
FY 1982	3.19	3.51	0.01	0.18	0.15	1.60	0.46	9.20	6.19	3.24	1.49	1.20	30.42
DEVIATION	0.79	1.87	-1.11	-0.66	-0.87	-0.20	-2.46	4.89	1.69	-0.36	-1.71	-2.50	-0.63
POOL ELEVATION													
END OF MONTH	1008.72	1010.35	1010.36	1010.44	1011.05	1010.21	1010.25	1022.42	1021.35	1010.95	1008.61	1009.00	
MAXIMUM	1009.00	1010.95	1010.55	1010.48	1012.79	1012.62	1010.31	1022.89	1027.27	1021.35	1010.95	1009.98	
MINIMUM	1008.23	1008.72	1009.95	1009.84	1010.14	1009.83	1009.88	1010.02	1020.69	1010.95	1008.06	1008.39	
POOL CONTENT-EOM													
(1000AC.FT)	407.24	434.65	434.83	436.21	446.79	432.23	432.92	679.13	654.41	445.03	405.44	411.80	

ARKANSAS RIVER BASIN

GREAT SALT PLAINS LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	21.23	15.25	9.13	9.23	13.13	21.07	31.69	54.65	45.26	22.56	21.24	19.10	283.5
FY 1982	17.62	92.14	11.45	9.09	22.34	25.84	10.22	148.93	146.32	119.23	7.09	2.02	612.3
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	3.33	25.15	6.05	5.94	8.78	21.14	18.33	62.73	55.22	23.66	5.05	10.84	246.2
FY 1982	12.33	90.68	13.74	8.12	20.13	26.46	6.84	125.35	154.28	118.80	6.37	0.89	584.0
RAINFALL(INCHES)													
AVG 1930 THRU 1977	1.87	1.19	0.65	0.68	0.91	1.65	3.17	3.61	3.59	2.53	2.16	2.46	24.69
FY 1982	1.70	3.04	0.00	0.32	0.29	0.73	1.00	6.81	3.93	4.68	0.69	0.46	22.88
DEVIATION	-0.17	1.85	-0.65	-0.34	-0.66	-0.72	-1.97	2.90	-0.06	2.12	-2.27	-2.00	-1.97
POOL ELEVATION													
END OF MONTH	1125.42	1125.71	1125.35	1125.45	1125.62	1125.40	1125.42	1127.29	1125.94	1125.55	1125.05	1124.88	
MAXIMUM	1125.83	1127.79	1125.78	1125.45	1125.80	1126.05	1125.65	1129.62	1129.43	1129.14	1125.55	1125.11	
MINIMUM	1125.00	1125.42	1125.30	1125.20	1125.34	1125.38	1125.12	1125.42	1125.94	1125.55	1125.01	1124.88	
POOL CONTENT-EOM													
(1000AC.FT)	35.32	38.01	34.67	35.59	37.17	35.13	35.32	54.59	40.14	36.52	31.88	30.44	

ARKANSAS RIVER BASIN

KEYSTONE LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	394.68	288.16	175.45	167.90	194.73	336.81	536.34	752.88	738.79	466.47	283.50	328.51	4664.2
FY 1982	181.03	568.46	128.53	126.25	312.89	388.76	130.31	1894.69	1697.08	759.17	180.99	46.31	6414.5
RELEASES(1000AC.FT.)													
AVG 1975 THRU 1982	77.81	258.22	121.62	84.76	117.74	251.04	314.46	639.03	731.65	429.43	195.35	199.34	3420.4
FY 1982	59.57	592.52	206.09	81.66	249.97	405.56	137.43	1468.38	1797.64	888.30	278.03	68.99	6234.1
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.42	1.68	1.18	0.95	1.11	1.81	2.90	4.37	4.18	3.20	3.03	3.50	30.33
FY 1982	4.25	3.22	0.02	1.33	0.62	1.68	1.65	11.29	4.93	3.72	0.74	0.77	34.22
DEVIATION	1.83	1.54	-1.16	0.38	-0.49	-0.13	-1.25	6.92	0.75	0.52	-2.29	-2.73	3.89
POOL ELEVATION													
END OF MONTH	723.98	723.48	719.97	721.65	723.97	722.52	721.82	735.50	731.96	726.88	722.43	720.82	
MAXIMUM	724.05	727.27	723.55	721.65	725.19	724.44	722.72	739.22	738.62	731.96	726.88	722.46	
MINIMUM	719.49	723.02	719.97	718.37	721.65	719.51	721.38	721.82	731.96	726.88	722.42	720.79	
POOL CONTENT-EOM													
(1000AC.FT)	643.67	630.67	543.20	583.72	643.61	546.48	530.40	924.47	806.53	656.33	544.40	508.17	

ARKANSAS RIVER BASIN

HEYBURN LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1929 THRU 1981	2.44	2.65	1.50	1.30	1.92	3.24	6.15	7.82	7.59	2.51	1.53	3.77	42.4
FY 1982	3.76	5.78	0.24	4.80	4.74	1.87	0.45	34.94	3.04	0.92	0.00	0.00	60.5
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	0.55	1.31	0.02	0.35	1.33	1.03	1.96	11.59	5.52	0.49	0.07	0.56	24.8
FY 1982	3.37	3.42	0.00	2.08	7.44	1.53	0.05	31.20	3.44	0.21	0.08	0.00	57.8
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.94	2.25	1.51	1.40	1.54	2.32	3.53	4.88	4.28	3.22	3.05	3.71	34.63
FY 1982	5.46	3.67	0.03	3.89	0.82	1.33	1.23	10.87	3.63	2.24	0.19	0.66	34.02
DEVIATION	2.52	1.42	-1.48	2.49	-0.72	-0.99	-2.30	5.99	-0.65	-0.98	-2.86	-3.05	-0.61
POOL ELEVATION													
END OF MONTH	761.35	758.31	758.40	761.90	758.34	758.41	758.50	762.46	761.64	761.78	760.93	760.29	
MAXIMUM	761.95	762.91	758.40	762.37	761.91	759.70	758.51	773.64	763.31	761.88	761.78	760.93	
MINIMUM	758.28	758.17	759.31	758.36	758.25	758.32	758.33	758.50	761.64	761.20	760.93	760.29	
POOL CONTENT-EOM (1000AC.FT)	7.05	4.30	4.36	7.00	4.32	4.36	4.42	7.57	6.76	6.89	6.13	5.64	

ARKANSAS RIVER BASIN

TORONTO LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1922 THRU 1981	19.64	18.97	11.46	12.33	13.35	32.04	46.42	40.55	52.97	34.79	9.13	23.24	314.9
FY 1982	15.36	61.88	13.91	32.39	38.29	41.64	6.85	193.64	104.98	7.07	12.40	0.66	529.1
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	5.25	21.55	6.64	1.64	17.67	25.37	27.80	30.84	56.78	25.81	7.01	8.36	234.8
FY 1982	11.26	57.91	21.03	3.44	67.32	38.01	8.11	90.96	186.22	22.31	10.64	1.02	518.2
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.75	2.00	1.32	1.04	1.06	2.35	3.35	4.73	5.10	3.96	3.38	4.45	35.49
FY 1982	3.71	3.48	0.00	0.85	0.27	1.52	0.63	11.46	4.17	1.86	5.96	1.07	34.98
DEVIATION	0.96	1.48	-1.32	-0.19	-0.79	-0.83	-2.72	6.73	-0.93	-2.10	2.58	-3.38	-0.51
POOL ELEVATION													
END OF MONTH	903.62	904.43	901.78	910.00	901.51	902.58	901.75	922.18	906.86	901.39	901.71	901.23	
MAXIMUM	905.35	911.66	904.91	910.00	910.53	908.25	902.63	922.18	925.78	906.86	904.17	901.71	
MINIMUM	902.28	903.39	901.78	901.41	901.51	901.46	901.42	901.73	906.66	901.39	901.29	901.23	
POOL CONTENT-EOM (1000AC.FT)	28.01	30.57	22.63	51.65	21.92	23.98	21.69	121.56	37.79	20.74	21.59	20.31	

ARKANSAS RIVER BASIN

FALL RIVER LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1922 THRU 1981	15.23	14.09	8.25	9.31	10.09	23.68	36.26	33.38	37.93	18.32	6.26	15.10	227.9
FY 1982	1.89	16.73	6.77	10.66	22.21	29.09	6.55	131.25	87.56	6.54	8.09	0.77	328.1
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	2.26	10.81	3.67	1.60	9.55	18.02	20.48	32.74	46.75	32.80	5.06	4.16	187.9
FY 1982	0.36	14.57	9.58	1.32	30.96	25.46	6.57	62.33	145.71	14.65	6.38	1.55	319.5
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.64	1.72	1.24	0.93	1.04	2.10	3.19	4.45	4.86	3.80	3.16	4.18	33.31
FY 1982	4.56	3.97	0.00	0.55	0.19	1.29	0.43	10.44	4.74	2.21	4.04	0.95	33.47
DEVIATION	2.02	2.25	-1.24	-0.38	-0.85	-0.81	-2.76	5.99	-0.12	-1.59	0.88	-3.23	0.16
POOL ELEVATION													
END OF MONTH	949.12	943.78	948.55	951.83	948.77	949.17	948.59	965.60	951.84	948.58	948.84	948.11	
MAXIMUM	949.12	952.09	950.12	951.83	952.07	953.33	949.22	965.60	971.20	951.84	949.73	948.84	
MINIMUM	948.55	949.12	948.50	948.60	949.49	948.51	948.30	948.35	951.84	948.58	948.46	948.11	
POOL CONTENT-EOM (1000AC.FT)	23.41	25.09	22.04	30.88	22.56	23.53	22.14	90.21	30.91	22.11	22.72	21.01	

ARKANSAS RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
	14.46	17.90	8.53	10.18	9.80	25.74	41.73	40.68	42.54	21.54	5.05	14.88	257.0
	3.99	11.65	2.68	2.77	9.26	21.51	1.52	71.94	161.03	5.08	4.11	0.24	295.6
	1.17	13.08	5.14	5.91	6.19	18.12	18.89	29.72	46.68	78.70	5.61	3.98	233.1
	.96	6.27	3.50	32.52	10.32	1.58	0.59	26.57	136.88	62.87	3.68	0.30	285.9
	1.37	2.13	1.36	1.23	1.17	2.28	3.55	4.75	5.15	3.71	3.17	4.53	35.90
	.76	3.74	0.00	0.64	0.18	1.68	0.43	9.92	7.48	2.08	4.97	1.20	37.08
	.39	1.61	-1.36	-0.59	-0.99	-0.60	-3.12	5.17	2.33	-1.63	1.80	-3.33	1.18
			795.68	786.55	786.16	793.17	793.06	802.21	805.63	794.26	793.95	793.58	
			796.12	795.68	786.92	793.17	793.27	802.21	807.54	805.63	794.62	793.96	
			795.68	786.03	785.88	786.04	793.04	793.06	798.47	794.13	793.93	793.58	
(1000AC.FT)			43.18	13.64	12.78	33.24	32.82	77.13	99.11	37.49	36.21	34.80	

AD-A130 191 ANNUAL REPORT RESERVOIR CONTROL CENTER SOUTHWESTERN DIVISION ON RESERVOIR REGULATION AND WATER MANAGEMENT ACTIVITIES(U) CORPS OF ENGINEERS DALLAS TX SOUTHWESTERN

2/2

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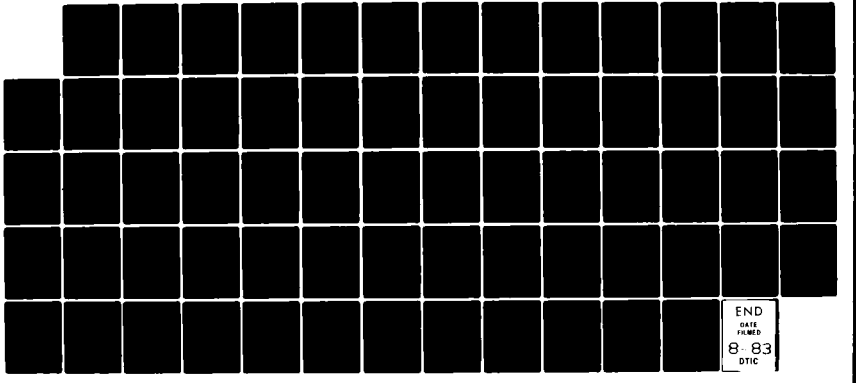

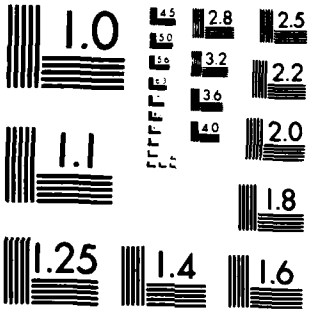

BIG HILL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1929 THRU 1978	1.69	1.19	0.75	1.05	0.67	1.69	2.30	3.13	3.60	1.73	0.27	1.33	19.4
FY 1982	1.16	0.56	0.13	0.57	0.59	2.69	0.16	1.23	3.43	0.42	0.50	0.03	11.5
RELEASES(1000AC.FT.)													
LAKE HAS NOT FILLED													
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.14	2.63	1.52	1.46	1.34	2.54	3.82	5.18	5.67	3.81	3.36	4.90	39.17
FY 1982	6.76	1.80	0.00	0.68	0.09	1.66	0.79	7.82	5.84	1.81	4.30	0.83	32.38
DEVIATION	3.62	-0.63	-1.52	-0.78	-1.25	-0.88	-3.03	2.64	0.17	-2.00	0.94	-4.07	-6.79
POOL ELEVATION													
END OF MONTH	822.60	824.70	825.12	826.82	828.35	833.87	833.80	835.45	840.28	840.33	840.56	840.21	
MAXIMUM	822.60	824.70	825.12	826.82	828.35	833.87	833.89	835.45	840.28	840.54	840.73	840.56	
MINIMUM	813.91	822.60	824.70	825.12	826.82	828.35	833.80	833.80	835.45	840.19	840.18	840.21	
POOL CONTENT-EOM (1000AC.FT)	1.40	1.90	2.02	2.54	3.09	5.69	5.65	6.59	9.84	9.87	10.05	9.78	

ADOLGAH LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	152.90	138.22	80.40	91.90	84.20	179.83	276.30	289.73	290.68	163.74	51.80	107.14	1906.8
FY 1982	45.22	122.78	39.67	87.87	159.39	174.25	32.23	366.64	727.98	159.94	44.71	16.36	1977.0
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	25.80	119.34	33.28	14.62	55.43	161.73	166.12	140.78	234.18	340.83	47.20	44.38	1383.7
FY 1982	16.89	124.66	36.29	28.18	180.82	189.43	14.41	102.93	768.51	313.11	85.56	1.67	1862.5
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.21	2.30	1.54	1.45	1.32	2.51	3.74	5.07	5.28	3.69	3.31	4.79	38.21
FY 1982	5.34	2.81	0.01	1.74	0.30	1.65	0.99	8.94	5.15	1.95	3.50	1.53	33.91
DEVIATION	2.13	0.51	-1.53	0.29	-1.02	-0.86	-2.75	3.87	-0.13	-1.74	0.19	-3.26	-4.30
POOL ELEVATION													
END OF MONTH	638.66	638.06	638.02	639.83	639.90	638.08	638.19	646.15	644.45	639.24	637.14	636.99	
MAXIMUM	638.50	638.99	638.28	639.83	640.17	640.90	638.27	646.15	648.59	644.45	639.24	637.38	
MINIMUM	637.56	637.75	637.94	638.02	638.90	637.94	637.80	638.05	644.45	639.24	636.29	636.84	
POOL CONTENT-EOM (1000AC.FT)	567.26	555.22	554.02	608.94	580.49	555.83	559.13	825.01	762.94	590.85	528.69	524.39	

ARKANSAS RIVER BASIN

MULAN LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1918 THRU 1981	26.93	22.70	9.62	9.63	9.35	24.64	40.30	45.44	38.01	29.02	12.81	25.62	294.1
FY 1982	4.92	24.77	5.40	5.44	11.47	27.64	4.28	166.36	78.55	5.24	1.36	1.72	337.2
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	4.15	18.60	9.43	1.52	8.22	16.24	21.13	37.04	52.58	31.69	8.29	3.21	212.1
FY 1982	0.30	6.72	6.51	1.26	13.76	26.34	2.16	43.71	186.86	11.70	0.35	0.77	300.4
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.97	2.10	1.40	1.23	1.20	2.19	3.50	4.77	4.72	3.45	3.35	4.21	35.09
FY 1982	4.46	4.13	0.01	0.73	0.16	1.47	0.43	12.03	4.91	2.46	1.28	1.69	33.76
DEVIATION	1.49	2.03	-1.39	-0.50	-1.04	-0.72	-3.07	7.26	0.19	-0.99	-2.07	-2.52	-1.33
POOL ELEVATION													
END OF MONTH	728.80	734.08	733.43	734.20	733.32	733.19	733.09	752.74	735.43	733.06	732.44	731.99	
MAXIMUM	728.80	734.53	734.22	734.20	734.46	736.28	733.19	752.74	755.90	735.43	733.06	732.44	
MINIMUM	727.27	728.90	733.23	733.00	733.08	732.99	732.86	732.70	735.43	733.06	732.44	731.99	
POOL CONTENT-EOM													
(1000AC.FT)	18.10	35.10	32.70	35.57	32.29	31.81	31.45	152.77	40.44	31.34	29.18	27.63	

ARKANSAS RIVER BASIN

COPAN	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1936 THRU 1982	6.52	6.35	14.96	29.68	43.76	27.49	21.27	5.24	13.54	16.57	9.25	5.36	200.0
FY 1982	4.67	15.00	5.11	4.04	9.96	27.46	4.04	82.70	95.19	6.29	1.09	0.46	256.0
RELEASES(1000AC.FT.)													
LAKE HAS NOT FILLED													
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.06	2.22	1.40	1.32	1.25	2.35	3.52	4.89	5.01	3.46	3.16	4.00	35.64
FY 1982	5.05	4.14	0.02	1.21	0.37	1.66	0.82	11.33	6.73	1.80	2.00	1.99	37.12
DEVIATION	1.99	1.92	-1.38	-0.11	-0.88	-0.69	-2.70	6.44	1.72	-1.66	-1.16	-2.01	1.48
POOL ELEVATION													
END OF MONTH	690.00	693.55	679.30	694.00	695.76	696.13	683.80	699.40	697.25	685.90	676.00	676.50	
MAXIMUM	692.66	697.45	694.47	694.00	696.16	699.01	696.13	700.68	700.75	697.25	685.90	678.70	
MINIMUM	675.50	690.00	679.30	677.05	692.98	693.91	683.80	678.70	696.60	685.90	676.00	675.80	
POOL CONTENT-EOM													
(1000AC.FT)	1.01	2.43	0.13	2.70	4.12	4.48	0.30	8.91	5.74	0.44	0.05	0.06	

ARKANSAS RIVER BASIN

BIRCH LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1936 THRU 1972	2.37	0.97	0.80	0.62	0.64	1.90	3.03	5.34	3.04	1.88	0.84	1.96	23.4
FY 1982	0.41	2.03	0.16	1.96	0.48	2.37	0.18	13.30	2.42	0.08	0.15	0.02	23.6
RELEASES(1000AC.FT.)													
AVG 1979 THRU 1982	0.22	0.18	0.17	0.19	0.59	1.12	1.34	4.30	2.52	0.72	0.26	0.23	11.8
FY 1982	0.18	0.15	0.18	0.18	1.90	2.11	0.18	8.90	5.12	0.25	0.20	0.18	19.4
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.85	2.08	1.45	1.24	1.31	2.37	3.28	5.01	4.52	3.23	3.31	4.42	35.07
FY 1982	3.81	4.12	0.03	1.51	0.13	1.78	1.04	9.92	3.55	1.79	0.38	0.33	28.39
DEVIATION	0.96	2.04	-1.42	0.27	-1.18	-0.59	-2.24	4.91	-0.97	-1.44	-2.93	-4.09	-6.68
POOL ELEVATION													
END OF MONTH	749.20	750.77	750.60	751.90	750.62	750.43	750.07	753.52	750.84	750.12	749.52	748.82	
MAXIMUM	749.29	750.77	750.79	751.90	752.05	752.20	750.43	755.09	753.52	750.84	750.12	749.52	
MINIMUM	749.01	749.20	750.60	750.33	750.49	750.43	750.03	750.03	750.25	750.12	749.52	748.82	
POOL CONTENT-EOM													
(1000AC.FT)	17.73	19.49	19.30	20.80	19.32	19.10	18.70	22.76	19.57	18.75	18.09	17.31	

ARKANSAS RIVER BASIN

SKIATOOK LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1935 THRU 1978	13.47	8.09	3.91	3.61	4.29	12.59	15.35	28.43	16.19	10.64	4.09	12.37	133.0
FY 1982	0.36	11.33	1.29	7.82	8.18	12.47	0.35	83.95	30.05	1.28	0.63	0.61	158.3
RELEASES(1000AC.FT.)													
LAKE HAS NOT FILLED													
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.96	2.15	1.44	1.30	1.35	2.33	3.28	4.82	4.33	3.33	3.30	4.35	34.94
FY 1982	10.40	3.10	0.05	4.27	0.98	1.32	1.17	7.57	7.26	3.12	0.52	0.30	40.06
DEVIATION	7.44	0.95	-1.39	2.97	-0.37	-1.01	-2.11	2.75	2.93	-0.21	-2.78	-4.05	5.12
POOL ELEVATION													
END OF MONTH	624.00	624.00	620.80	642.00	621.10	621.00	620.50	641.30	623.00	621.00	620.80	620.80	
MAXIMUM	624.00	644.60	625.00	646.80	642.00	646.10	621.00	657.20	644.30	623.00	621.00	620.90	
MINIMUM	620.00	620.00	620.80	620.00	620.00	620.50	620.30	620.40	621.80	620.80	620.80	620.80	
POOL CONTENT-EOM													
(1000AC.FT)	0.09	0.09	0.03	1.90	0.03	0.03	0.02	1.75	0.06	0.03	0.03	0.03	

ARKANSAS RIVER BASIN

HENRY GRAHAM LOCK AND DAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1957	306.03	159.47	104.65	137.73	123.85	203.04	501.27	562.13	549.77	233.60	99.67	137.64	3118.9
FY 1982	67.57	272.23	104.23	138.84	300.99	323.90	49.67	613.51	1198.56	410.34	122.68	16.48	3619.0
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	46.77	203.75	69.83	53.77	116.88	248.10	299.80	396.62	427.73	424.53	86.49	70.58	2444.8
FY 1982	68.10	272.03	104.10	137.89	300.74	319.05	49.26	613.92	1198.03	409.57	121.87	15.66	3610.2
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.21	2.26	1.58	1.46	1.47	2.49	3.62	4.87	4.72	3.37	3.25	4.49	36.79
FY 1982	4.85	3.82	0.05	2.33	0.47	1.64	1.24	9.90	4.50	2.86	1.34	1.87	34.87
DEVIATION	1.64	1.56	-1.53	0.87	-1.00	-0.85	-2.38	5.03	-0.22	-0.51	-1.91	-2.62	-1.92
POOL ELEVATION													
END OF MONTH	532.27	532.28	532.25	532.10	532.48	532.37	532.29	532.07	531.94	532.27	532.21	532.48	
MAXIMUM	532.53	532.56	532.49	532.49	532.49	532.49	532.49	532.49	532.47	532.49	532.50	532.49	
MINIMUM	532.03	531.91	532.06	531.96	531.94	531.98	532.11	531.55	531.50	531.65	531.96	531.95	
POOL CONTENT-EOM													
(1000AC.FT)	23.91	23.92	23.87	23.64	24.23	24.06	23.94	23.60	23.40	23.91	23.81	24.23	

ARKANSAS RIVER BASIN

CHOUTEAU LOCK AND DAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1957	306.03	159.47	104.65	137.73	123.85	203.31	501.22	562.13	549.77	233.60	99.67	137.64	3119.1
FY 1982	57.50	258.80	88.68	129.22	291.97	322.71	37.96	612.00	1249.54	393.28	102.09	14.44	3558.2
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	44.04	198.91	62.29	48.23	110.90	236.78	301.46	383.11	435.83	410.86	79.85	63.21	2375.4
FY 1982	54.98	253.37	88.47	128.90	291.91	301.50	37.20	611.17	1238.09	392.10	100.72	12.77	3516.2
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.49	2.77	2.05	1.92	2.04	2.89	4.19	5.19	4.96	3.17	2.96	4.30	39.93
FY 1982	6.51	2.90	0.02	4.03	0.65	1.05	1.32	5.65	7.35	1.93	1.96	2.56	35.93
DEVIATION	3.02	0.13	-2.03	2.11	-1.39	-1.84	-2.87	0.46	2.39	-1.24	-1.00	-1.74	-4.00
POOL ELEVATION													
END OF MONTH	511.45	511.45	511.48	511.41	511.49	511.36	511.49	511.56	511.23	511.33	511.54	511.44	
MAXIMUM	511.57	511.55	511.54	511.59	511.54	511.61	511.55	511.74	511.60	511.59	511.58	511.57	
MINIMUM	511.04	511.13	511.22	511.15	511.19	511.20	511.20	511.06	511.11	511.17	511.26	511.22	
POOL CONTENT-EOM													
(1000AC.FT)	23.59	23.59	23.66	23.50	23.68	23.39	23.68	23.84	23.09	23.32	23.80	23.57	

COUNCIL GROVE LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1922 THRU 1981	5.97	4.43	2.97	2.79	3.75	7.35	10.32	12.52	16.44	12.31	5.02	7.52	91.4
FY 1982	1.08	22.09	3.95	6.13	15.50	8.23	1.84	54.93	29.29	8.30	0.96	0.07	152.4
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	0.75	3.66	3.32	0.41	3.72	5.93	6.13	5.32	15.79	18.40	1.19	1.19	65.8
FY 1982	1.00	16.99	14.05	0.80	18.91	8.11	0.68	16.58	59.42	7.52	0.49	0.31	144.9
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.60	1.63	1.20	0.85	0.92	1.91	3.17	4.72	5.05	3.88	3.55	4.00	33.48
FY 1982	1.27	3.59	0.03	1.19	0.34	1.41	0.40	9.59	4.93	1.89	1.89	1.08	27.61
DEVIATION	-1.33	1.96	-1.17	0.34	-0.58	-0.50	-2.77	4.87	-0.12	-1.99	-1.66	-2.92	-5.87
POOL ELEVATION													
END OF MONTH	1272.13	1273.67	1270.04	1271.75	1270.45	1270.25	1270.31	1281.08	1272.12	1271.88	1271.66	1271.26	
MAXIMUM	1272.32	1274.88	1273.65	1271.75	1272.71	1271.13	1270.43	1281.08	1281.24	1273.18	1271.88	1271.66	
MINIMUM	1271.93	1272.13	1270.04	1270.02	1270.24	1269.90	1270.18	1270.30	1272.12	1271.88	1271.66	1271.22	
POOL CONTENT-EOM													
(1000AC.FT)	42.61	46.81	36.43	41.46	37.62	37.04	37.21	74.79	42.58	41.85	41.19	39.99	

MARION LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1938 THRU 1971	3.16	1.28	1.49	1.94	2.08	3.31	5.91	8.70	10.17	7.13	1.78	4.79	51.7
FY 1982	2.62	17.49	4.61	3.15	9.86	5.56	1.36	17.79	14.70	7.07	1.23	0.52	86.0
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	0.47	4.85	2.21	0.94	3.25	2.57	5.72	4.86	5.14	11.46	0.77	0.59	42.8
FY 1982	0.40	8.71	13.37	2.30	11.74	4.28	0.24	0.25	10.14	7.49	0.80	0.55	60.3
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.47	1.56	1.06	0.77	0.97	1.76	2.81	4.51	4.80	3.90	3.28	3.84	31.73
FY 1982	1.39	4.58	0.03	0.85	0.27	1.59	0.15	8.86	6.12	2.76	2.00	0.84	29.44
DEVIATION	-1.08	3.02	-1.03	0.08	-0.70	-0.17	-2.66	4.35	1.32	-1.14	-1.28	-3.00	-2.29
POOL ELEVATION													
END OF MONTH	1348.95	1350.25	1348.57	1348.61	1348.11	1347.98	1347.82	1350.50	1350.84	1350.17	1349.78	1349.36	
MAXIMUM	1348.95	1351.35	1350.56	1348.61	1348.96	1348.27	1347.98	1350.50	1351.33	1351.34	1350.17	1349.78	
MINIMUM	1348.75	1348.95	1348.57	1348.40	1348.11	1347.95	1347.78	1347.81	1350.50	1350.17	1349.78	1349.33	
POOL CONTENT-EOM													
(1000AC.FT)	74.45	82.19	72.30	72.53	69.71	68.98	68.12	83.74	85.85	81.70	79.34	76.86	

ARKANSAS RIVER BASIN

JOHN REDMOND DAM AND RES	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1922 THRU 1981	71.02	55.44	38.04	36.84	40.33	87.60	126.29	136.01	165.24	118.01	39.59	70.27	984.7
FY 1982	61.70	273.76	86.32	106.63	162.78	111.89	36.00	378.27	340.75	81.84	18.80	8.19	1666.1
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	13.26	61.72	31.67	13.45	51.42	75.18	100.59	97.04	154.23	162.71	26.72	27.92	815.9
FY 1982	38.14	257.81	108.78	31.62	239.46	95.55	48.36	273.50	415.04	101.67	12.35	4.72	1626.8
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.65	1.67	1.16	0.88	0.96	1.96	3.05	4.55	4.95	3.89	3.43	4.17	33.32
FY 1982	2.86	3.81	0.00	0.83	0.11	1.20	0.27	8.70	4.09	1.79	1.97	1.32	26.95
DEVIATION	0.21	2.14	-1.16	-0.05	-0.85	-0.76	-2.78	4.15	-0.86	-2.10	-1.46	-2.85	-6.37
POOL ELEVATION													
END OF MONTH	1041.30	1042.45	1039.50	1046.00	1039.16	1040.81	1039.09	1048.15	1041.50	1038.81	1039.00	1039.05	
MAXIMUM	1042.72	1046.85	1042.53	1046.00	1046.86	1040.81	1040.83	1049.86	1052.75	1041.50	1039.29	1039.12	
MINIMUM	1039.21	1041.30	1039.50	1038.91	1039.02	1038.97	1038.92	1039.06	1041.50	1038.79	1038.81	1038.90	
POOL CONTENT-EOM (1000AC.FT)	93.93	106.44	76.00	150.27	72.79	73.76	57.69	159.43	80.56	55.27	56.87	57.33	

ARKANSAS RIVER BASIN

PENSACOLA LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	322.60	323.22	236.46	249.34	281.52	462.47	648.79	692.47	729.00	403.86	171.64	260.79	4782.2
FY 1982	247.16	521.06	247.93	332.23	652.96	472.56	141.12	832.07	1203.77	254.48	127.73	58.61	5091.7
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	132.95	228.91	150.28	119.83	183.20	371.65	415.86	334.92	476.33	608.31	239.11	180.90	3444.1
FY 1982	127.75	513.78	217.11	313.63	627.57	512.01	275.01	516.24	1176.55	452.57	207.93	61.43	5001.6
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.44	2.62	1.93	1.74	1.75	2.86	4.08	5.19	5.32	3.64	3.37	4.83	40.77
FY 1982	5.44	2.57	0.04	2.23	0.13	1.60	0.91	7.62	4.29	1.87	4.82	1.20	32.72
DEVIATION	2.00	-0.05	-1.99	0.49	-1.62	-1.26	-3.17	2.43	-1.03	-1.77	1.45	-3.63	-8.05
POOL ELEVATION													
END OF MONTH	742.91	742.60	743.30	743.63	743.77	742.80	739.90	746.67	746.93	742.07	739.75	739.48	
MAXIMUM	742.91	745.11	744.06	743.63	746.00	745.95	742.82	746.67	749.59	746.93	742.10	739.75	
MINIMUM	739.18	742.04	742.09	740.24	743.63	741.79	739.90	738.65	746.67	742.06	739.75	739.37	
POOL CONTENT-EOM (1000AC.FT)	1577.04	1563.40	1594.50	1609.35	1615.65	1572.20	1447.90	1751.16	1763.64	1540.08	1441.75	1430.68	

ARKANSAS RIVER BASIN

LAKE HUDSON	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	366.07	326.50	276.23	277.65	316.68	493.77	703.76	798.60	797.85	469.55	232.23	292.51	5351.4
FY 1982	148.66	566.68	232.86	374.48	758.88	611.11	301.88	681.72	1404.56	500.23	217.88	71.40	5870.3
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	142.50	257.31	173.41	131.07	222.08	434.38	569.19	395.47	620.01	649.44	239.79	188.07	4022.7
FY 1982	137.45	574.12	230.72	348.38	776.43	607.04	301.45	641.87	1425.74	511.93	213.38	64.92	5833.8
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.86	2.93	2.21	1.97	2.11	3.12	4.32	5.50	5.22	3.29	3.43	4.88	42.84
FY 1982	6.20	2.64	0.04	2.95	0.20	1.53	0.98	7.09	6.48	1.92	0.93	0.78	31.74
DEVIATION	2.34	-0.29	-2.17	0.98	-1.91	-1.59	-3.34	1.59	1.26	-1.37	-2.50	-4.10	-11.10
POOL ELEVATION													
END OF MONTH	620.00	619.35	619.16	621.25	619.43	619.47	619.60	622.14	620.66	619.42	619.66	619.10	
MAXIMUM	620.00	620.27	619.85	621.25	622.18	620.45	619.70	622.72	628.42	621.47	619.83	619.80	
MINIMUM	619.74	618.30	618.55	618.70	618.93	618.68	618.88	619.19	620.07	618.58	618.93	618.89	
POOL CONTENT-EOM													
(1000AC.FT)	211.35	204.17	202.07	225.68	205.05	205.49	206.93	236.19	218.87	204.94	207.59	201.40	

ARKANSAS RIVER BASIN

FORT GIBSON LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1980	392.66	377.51	305.41	312.54	355.69	546.77	797.48	887.79	880.74	507.86	248.96	323.89	5937.3
FY 1982	191.78	628.56	254.60	382.42	774.74	604.36	284.03	665.65	1430.74	486.54	196.16	66.39	5966.0
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	160.99	283.67	197.49	144.31	235.43	462.83	598.23	423.50	623.53	726.74	244.06	186.40	4287.2
FY 1982	187.54	680.32	247.21	290.90	863.99	618.30	280.19	527.08	1460.99	569.25	181.91	61.14	5968.8
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.72	2.90	2.22	1.99	2.15	3.11	4.32	5.40	5.09	3.13	3.25	4.15	41.43
FY 1982	7.37	2.95	0.01	3.69	0.32	1.53	1.27	7.31	6.65	3.65	1.14	1.09	36.98
DEVIATION	3.65	0.05	-2.21	1.70	-1.83	-1.58	-3.05	1.91	1.56	0.52	-2.11	-3.06	-4.45
POOL ELEVATION													
END OF MONTH	553.75	553.59	553.35	558.69	554.40	553.37	553.26	560.32	558.57	554.01	554.27	553.80	
MAXIMUM	554.27	554.08	554.07	558.69	559.68	555.30	554.00	560.32	565.90	558.57	554.99	555.08	
MINIMUM	552.89	553.37	553.02	553.18	554.11	552.07	552.60	553.16	558.57	552.93	553.37	553.76	
POOL CONTENT-EOM													
(1000AC.FT)	360.52	357.53	353.04	462.46	372.92	353.42	351.36	500.28	459.77	365.39	370.41	361.46	

ARKANSAS RIVER BASIN

MEREDITH FALLS LED	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1940 THRU 1981	1163.75	1067.84	732.82	668.85	751.95	1291.80	1905.47	2350.06	1996.12	1593.36	687.71	627.23	14837.0
FY 1982	497.52	1938.64	667.17	705.72	1722.25	1626.64	514.19	3118.90	5431.93	2339.47	690.74	175.44	19428.6
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	308.68	823.38	409.75	315.00	504.36	1024.81	1303.68	1624.18	2051.69	1636.18	534.91	482.12	11018.7
FY 1982	481.38	1929.74	668.98	717.84	1710.95	1631.07	528.81	3136.29	5433.84	2328.74	700.62	170.44	19438.3
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.52	2.79	2.14	1.93	2.14	2.95	4.30	5.22	5.00	3.11	2.99	4.35	40.44
FY 1982	7.78	3.04	0.04	3.84	0.44	1.31	1.29	8.94	7.07	2.63	1.20	1.74	39.32
DEVIATION	4.26	0.25	-2.10	1.91	-1.70	-1.64	-3.01	3.72	2.07	-0.48	-1.79	-2.61	-1.12
POOL ELEVATION													
END OF MONTH	490.08	490.03	489.81	489.63	489.85	489.56	489.88	489.62	489.78	490.20	489.87	489.70	
MAXIMUM	490.35	490.16	490.27	490.29	490.19	490.30	490.25	490.14	490.30	490.20	490.30	490.13	
MINIMUM	488.87	489.50	489.45	489.49	489.41	489.00	489.27	489.27	489.23	489.22	489.48	489.48	
POOL CONTENT-EOM													
(1000AC.FT)	166.10	165.54	163.19	161.28	163.61	165.10	168.74	165.79	167.61	172.53	168.63	166.70	

ARKANSAS RIVER BASIN

TENKILLER LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	52.66	73.08	76.11	82.05	97.10	136.73	174.34	188.34	119.59	53.49	40.27	35.47	1129.2
FY 1982	72.55	82.02	26.48	78.55	171.05	73.52	41.16	96.68	231.96	23.48	16.07	6.74	920.3
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	34.60	23.58	40.48	40.96	40.79	58.82	102.40	89.15	74.23	60.97	49.88	29.13	645.0
FY 1982	15.97	37.63	81.26	49.54	111.95	111.11	75.35	25.54	147.42	104.00	71.93	21.86	853.5
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.71	3.16	2.65	2.26	2.69	3.50	4.70	5.63	4.86	3.22	3.38	4.43	44.19
FY 1982	6.63	2.39	0.02	2.77	0.16	1.11	0.74	5.58	6.12	2.82	1.33	0.60	30.27
DEVIATION	2.92	-0.77	-2.63	0.51	-2.53	-2.39	-3.96	-0.05	1.26	-0.40	-2.05	-3.83	-13.92
POOL ELEVATION													
END OF MONTH	628.62	631.33	627.40	629.68	634.18	630.74	627.51	632.90	637.82	631.33	626.28	624.42	
MAXIMUM	628.62	633.68	631.94	629.68	636.47	634.18	630.74	632.90	643.43	637.82	631.37	626.28	
MINIMUM	623.56	628.62	627.40	624.06	629.68	629.74	627.51	627.03	632.90	631.33	626.28	624.42	
POOL CONTENT-EOM													
(1000AC.FT)	611.73	653.18	596.72	624.76	682.66	637.80	598.07	665.89	732.20	645.32	583.30	561.67	

CONCHAS LAKE													
Inflows (1000 Ac-Ft)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Avg 1940 thru 1982	16.9	20.5	19.0	10.2	3.6	3.4	4.6	7.9	14.6	23.3	33.9	16.6	173.4
FY 1982	2.2	.6	.9	1.4	2.0	1.5	1.0	5.6	27.8	88.5	39.2	14.0	184.6
Releases (1000 Ac-Ft)													
Avg 1941 thru 1982	4.2	1.1	1.0	.8	.9	.7	14.0	10.7	8.2	8.1	9.1	12.6	73.7
FY 1982	5.1	.00	.00	.00	.00	.2	12.6	10.1	5.4	12.0	10.5	14.1	70.0
Rainfall (Inches)													
Avg 1940 thru 1981	.92	.42	.40	.31	.35	.57	.86	1.38	1.46	2.50	2.43	1.46	13.02
FY 1982	1.30	.08	.05	.14	.30	.54	.08	1.45	3.24	1.91	3.44	.70	13.23
Pool Elevation (EOM)	4175.63	4175.47	4175.46	4175.56	4175.72	4175.51	4172.45	4170.84	4175.07	4187.72	4191.08	4190.63	
Maximum	4176.55	4175.62	4175.47	4175.56	4175.72	4175.73	4175.50	4172.39	4175.07	4187.72	4191.08	4191.06	4191.08
Minimum	4175.63	4175.47	4175.45	4175.46	4175.57	4175.51	4172.45	4170.35	4170.18	4174.70	4187.86	4190.50	4170.18
Pool content(EOM)													
(1000 Ac-Ft)	151.1	150.3	150.3	150.8	151.5	150.5	136.0	128.8	148.4	221.0	245.1	241.8	

SANFORD RESERVOIR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	21.36	3.42	1.97	3.18	2.09	2.58	11.47	35.88	38.51	37.66	35.93	30.86	224.9
FY 1982	7.48	3.51	1.26	2.28	3.63	3.47	2.47	8.07	39.12	73.26	46.76	17.39	208.7
RELEASES(1000AC.FT.)													
LAKE HAS NOT FILLED													
RAINFALL(INCHES)													
AVG 1930 THRU 1977	1.36	0.56	0.50	0.43	0.47	0.67	1.13	2.44	2.35	2.75	2.48	1.65	16.79
FY 1982	0.97	0.56	0.00	0.03	0.07	0.25	0.20	1.60	2.96	4.91	1.38	0.76	13.69
DEVIATION	-0.39	0.00	-0.50	-0.40	-0.40	-0.42	-0.93	-0.84	0.61	2.16	-1.10	-0.89	-3.10
POOL ELEVATION													
END OF MONTH	2897.63	2897.20	2896.59	2895.97	2895.58	2894.97	2894.04	2893.93	2897.20	2903.41	2906.42	2906.89	
MAXIMUM	2897.90	2897.63	2897.20	2896.61	2895.97	2895.58	2894.97	2894.05	2897.20	2903.41	2906.44	2906.94	
MINIMUM	2897.58	2897.16	2896.59	2895.93	2895.57	2894.97	2894.03	2893.81	2893.69	2897.15	2903.41	2906.31	
POOL CONTENT-EOM													
(1000AC.FT)	348.91	329.46	323.80	318.09	314.55	309.01	300.71	299.74	329.46	390.46	422.60	427.77	

ARKANSAS RIVER BASIN

NORMAN RESERVOIR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1926 THRU 1981	3.80	3.30	1.60	1.10	2.10	4.20	9.50	13.70	12.10	4.40	0.70	2.40	56.5
FY 1982	3.58	5.94	0.06	3.99	2.66	3.21	2.73	40.79	10.30	1.21	0.05	0.69	75.2
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	3.35	1.61	0.00	0.00	5.9
FY 1982	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.75	12.09	6.14	0.00	0.00	21.0
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.96	2.03	1.52	1.31	1.53	2.23	3.52	5.33	4.30	2.93	2.66	3.60	33.92
FY 1982	5.46	3.22	0.11	3.22	0.87	2.13	2.33	12.94	6.19	3.45	0.26	2.41	42.59
DEVIATION	2.50	1.19	-1.41	1.91	-0.66	-0.10	-1.19	7.61	1.89	0.52	-2.40	-1.19	8.67
POOL ELEVATION													
END OF MONTH	1036.37	1035.22	1034.91	1035.36	1035.47	1035.66	1035.68	1041.37	1040.60	1039.12	1038.34	1037.88	
MAXIMUM	1036.46	1035.31	1035.22	1035.36	1035.53	1035.68	1035.68	1041.37	1041.72	1040.60	1039.12	1038.34	
MINIMUM	1031.74	1034.37	1034.91	1034.72	1035.36	1035.37	1035.34	1035.68	1040.02	1039.03	1038.34	1037.88	
POOL CONTENT-EOM (1000AC.FT)	93.62	98.01	96.35	98.78	99.38	100.43	100.54	134.64	129.60	120.33	115.64	112.90	

ARKANSAS RIVER BASIN

OPTIMA LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1939 THRU 1981	2.10	0.82	0.96	0.89	1.05	1.05	1.57	5.60	6.75	3.77	3.36	3.30	31.2
FY 1982	0.14	0.10	0.05	0.03	0.23	0.28	0.14	1.58	1.27	0.96	0.48	0.11	5.4
RELEASES(1000AC.FT.)													
LAKE HAS NOT FILLED													
RAINFALL(INCHES)													
AVG 1930 THRU 1977	1.17	0.58	0.41	0.36	0.42	0.76	1.21	2.55	2.24	2.73	2.45	1.67	16.55
FY 1982	0.52	0.66	0.00	0.02	0.12	0.11	0.83	1.69	1.43	3.64	1.84	1.45	12.31
DEVIATION	-0.65	0.08	-0.41	-0.34	-0.30	-0.65	-0.38	-0.86	-0.81	0.91	-0.61	-0.22	-4.24
POOL ELEVATION													
END OF MONTH	2719.80	2719.70	2719.60	2719.45	2719.55	2719.50	2719.10	2720.40	2721.30	2721.50	2721.20	2720.70	
MAXIMUM	2720.00	2719.80	2719.70	2719.60	2719.55	2719.60	2719.50	2720.40	2721.30	2721.70	2721.50	2721.20	
MINIMUM	2719.75	2719.70	2719.60	2719.45	2719.45	2719.50	2719.10	2719.00	2720.30	2721.20	2721.10	2720.70	
POOL CONTENT-EOM (1000AC.FT)	4.56	4.47	4.39	4.26	4.34	4.30	3.96	5.10	5.97	7.19	6.87	6.36	

ARKANSAS RIVER BASIN

FORT SUPPLY LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	5.96	3.34	1.83	1.92	3.26	3.01	4.63	12.05	11.42	4.28	3.50	3.59	58.8
FY 1982	0.39	2.27	1.72	2.14	2.65	3.12	2.45	16.33	5.00	1.92	1.19	0.12	39.3
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	0.03	0.75	0.73	0.94	1.55	1.72	2.54	12.44	4.82	0.57	0.45	0.38	26.9
FY 1982	0.00	0.00	0.63	1.84	2.66	2.25	1.31	14.22	5.30	1.28	1.23	0.14	30.9
RAINFALL(INCHES)													
AVG 1930 THRU 1977	1.61	0.96	0.66	0.55	0.80	1.14	1.72	3.47	3.09	2.47	2.47	1.86	20.80
FY 1982	1.85	1.62	0.00	0.02	0.09	0.43	1.10	7.86	3.59	5.01	1.06	1.08	23.71
DEVIATION	0.24	0.66	-0.66	-0.53	-0.71	-0.71	-0.62	4.39	0.50	2.54	-1.41	-0.78	2.91
POOL ELEVATION													
END OF MONTH	2002.93	2003.99	2004.43	2004.46	2004.22	2004.29	2004.46	2005.19	2004.66	2004.20	2003.49	2002.92	
MAXIMUM	2003.03	2004.04	2004.50	2004.49	2004.49	2004.37	2004.46	2008.10	2005.56	2004.70	2004.28	2003.69	
MINIMUM	2002.81	2002.92	2003.95	2004.32	2003.96	2003.74	2004.15	2004.37	2004.18	2004.15	2003.49	2002.92	
POOL CONTENT-EOM													
(1000AC.FT)	11.96	13.87	14.72	14.78	14.32	14.45	14.78	16.22	15.17	14.28	12.97	11.95	

20

ARKANSAS RIVER BASIN

CANTON LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	18.09	5.93	3.94	4.22	5.63	8.35	13.59	34.74	36.74	27.60	9.76	11.25	179.7
FY 1982	3.60	4.19	2.23	3.30	6.81	8.22	6.75	46.56	38.31	21.33	4.07	0.00	145.4
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	4.66	4.41	5.93	3.00	1.16	2.37	7.46	3.19	13.79	6.77	1.59	5.45	59.8
FY 1982	0.30	0.24	0.26	0.31	0.28	0.31	0.30	0.31	17.55	27.62	2.92	0.59	51.0
RAINFALL(INCHES)													
AVG 1930 THRU 1977	1.48	0.92	0.60	0.51	0.71	1.09	1.64	3.20	2.81	2.58	2.54	1.83	19.91
FY 1982	2.38	2.69	0.01	0.23	0.33	0.81	1.32	7.89	3.97	4.78	1.32	1.01	26.74
DEVIATION	0.90	1.77	-0.59	-0.28	-0.38	-0.28	-0.32	4.69	1.16	2.20	-1.22	-0.82	6.83
POOL ELEVATION													
END OF MONTH	1604.38	1605.07	1605.35	1605.87	1606.97	1608.11	1608.82	1615.15	1617.23	1615.82	1615.27	1614.58	
MAXIMUM	1604.38	1605.07	1605.41	1605.92	1606.97	1608.11	1608.82	1615.18	1617.23	1617.25	1615.82	1615.28	
MINIMUM	1603.69	1604.38	1604.97	1605.29	1605.83	1606.97	1608.07	1608.82	1615.15	1615.69	1615.27	1614.56	
POOL CONTENT-EOM													
(1000AC.FT)	42.59	45.80	47.16	49.69	55.29	61.55	65.67	109.37	126.37	114.69	110.32	104.97	

ARKANSAS RIVER BASIN

EUFAULA LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	332.38	246.54	202.92	218.39	262.49	353.60	526.38	766.88	603.75	252.71	144.26	212.12	4122.4
FY 1982	915.59	377.26	48.60	308.58	524.17	196.14	59.30	1895.21	1367.60	289.35	33.12	26.97	6041.9
RLLEASES(1000AC.FT.)													
AVG 1976 THRU 1982	101.32	131.51	73.00	96.55	110.30	74.31	127.02	373.37	607.17	271.60	169.49	61.13	2196.8
FY 1982	236.33	519.70	227.62	142.83	425.42	300.75	124.61	686.19	2008.57	559.80	306.25	61.95	5599.0
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.24	2.42	1.92	1.64	1.98	2.71	3.91	5.44	4.39	3.10	2.90	4.03	37.68
FY 1982	9.50	3.25	0.04	3.68	0.72	1.32	1.20	12.17	6.02	2.96	0.60	1.30	42.76
DEVIATION	6.26	0.83	-1.88	2.04	-1.26	-1.39	-2.71	6.73	1.63	-0.14	-2.30	-2.73	5.08
POOL ELEVATION													
END OF MONTH	586.46	586.35	583.04	584.70	585.46	584.19	583.17	593.58	587.83	584.93	581.16	580.38	
MAXIMUM	586.99	587.20	585.02	584.70	586.83	585.49	584.19	593.59	595.30	588.11	584.93	581.17	
MINIMUM	579.41	586.76	581.04	581.75	584.70	583.70	583.15	583.16	587.83	584.93	581.16	580.36	
POOL CONTENT-EOM													
(1000AC.FT)	2482.17	2324.64	2134.61	2299.34	2377.49	2247.73	2147.32	3327.54	2630.58	2282.13	1960.23	1891.26	

ARKANSAS RIVER BASIN

R.S.KERR LOCK AND DAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1943 THRU 1981	1283.00	1231.74	1064.24	964.67	1176.02	1963.52	2466.04	3141.04	2757.85	2170.09	986.93	1279.80	20484.9
FY 1982	856.77	2334.54	864.60	946.71	2153.42	1881.12	664.66	3801.99	7729.39	2877.11	999.88	240.40	25350.6
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	441.68	975.34	522.94	466.50	678.57	1243.50	1607.65	2213.45	2812.15	1927.88	741.23	551.45	14182.8
FY 1982	780.70	2505.46	866.89	909.78	2149.07	1918.90	658.11	3739.10	7734.98	2909.43	972.69	237.22	25382.3
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.69	3.05	2.63	2.16	2.64	3.42	4.63	5.55	4.64	3.21	3.24	4.27	43.13
FY 1982	10.40	3.10	0.05	4.27	0.98	1.32	1.17	7.57	7.26	3.62	1.22	0.84	41.80
DEVIATION	6.71	0.05	-2.58	2.11	-1.66	-2.10	-3.46	2.02	2.62	0.41	-2.02	-3.43	-1.33
POOL ELEVATION													
END OF MONTH	459.99	459.36	459.50	460.00	459.99	459.06	459.20	459.00	459.99	458.88	459.07	458.95	
MAXIMUM	460.40	460.42	459.93	460.84	460.39	460.30	459.60	460.35	460.93	460.35	459.86	459.84	
MINIMUM	458.60	458.72	458.58	459.04	458.98	458.74	458.52	459.00	458.89	458.39	458.41	458.90	
POOL CONTENT-EOM													
(1000AC.FT)	493.20	468.13	473.70	493.60	493.20	485.17	491.21	482.59	525.26	477.60	485.60	480.91	

ARKANSAS RIVER BASIN

W.O. MAYO LOCK AND DAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1943 THRU 1981	1280.93	1308.95	1072.34	1000.13	1200.22	2018.50	2575.19	3157.14	2710.16	2122.46	974.74	1253.55	20680.3
FY 1982	862.66	2369.97	952.48	937.98	2247.98	1985.45	732.49	3653.97	7990.25	2940.69	1045.29	287.01	26006.2
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	491.72	993.73	581.31	523.21	717.44	1339.61	1650.59	2152.89	2890.04	1965.35	798.48	601.39	14713.8
FY 1982	873.15	2366.93	951.41	972.82	2247.59	1988.36	730.74	3654.66	7985.03	2933.05	1046.71	285.71	26036.2
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.45	3.29	2.76	2.26	2.83	3.63	4.56	5.48	4.31	3.19	3.08	4.17	42.99
FY 1982	5.98	3.20	0.06	4.04	0.60	1.40	0.86	5.81	5.85	3.22	1.63	0.18	32.83
DEVIATION	2.53	-0.09	-2.70	1.78	-2.23	-2.23	-3.68	0.33	1.54	0.03	-1.45	-3.99	-10.16
POOL ELEVATION													
END OF MONTH	412.66	412.94	412.64	412.10	412.93	412.66	412.96	412.17	410.17	412.76	412.66	412.98	
MAXIMUM	413.00	413.11	413.20	413.08	413.17	413.05	413.15	413.05	414.97	413.35	413.18	413.06	
MINIMUM	411.69	412.20	412.10	411.61	411.45	412.06	412.18	411.22	409.85	407.41	412.07	412.00	
POOL CONTENT-EOM (1000AC.FT)	15.23	15.67	15.20	14.34	15.66	15.23	15.71	14.45	11.60	15.39	15.23	15.74	

ARKANSAS RIVER BASIN

WISTER LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1938 THRU 1981	18.76	50.67	65.96	67.53	93.38	126.43	132.44	134.46	60.21	21.41	9.21	17.46	797.7
FY 1982	119.94	40.41	21.06	127.20	167.28	82.57	19.34	251.04	139.71	9.97	5.41	0.12	984.1
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	16.70	11.06	52.02	35.91	70.22	104.10	59.77	95.41	110.13	20.93	7.62	5.03	588.9
FY 1982	110.45	41.96	60.67	24.70	259.71	88.94	18.72	156.45	200.24	9.51	1.93	1.31	976.6
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.46	3.56	3.14	2.74	3.17	3.98	4.69	5.73	4.13	3.59	3.36	4.17	45.72
FY 1982	5.91	2.52	0.03	3.56	0.77	1.25	1.49	8.58	6.22	3.35	3.22	0.17	36.97
DEVIATION	2.35	-1.04	-3.11	0.82	-2.40	-2.73	-3.20	2.85	2.09	-0.24	-0.14	-4.00	-8.75
POOL ELEVATION													
END OF MONTH	478.60	478.67	471.60	485.01	473.37	471.82	471.72	484.14	478.13	477.92	477.99	477.49	
MAXIMUM	487.51	480.09	478.84	485.01	489.48	476.29	472.78	489.33	489.37	478.61	478.15	478.00	
MINIMUM	477.83	477.90	471.60	471.55	473.32	471.64	471.48	471.67	478.13	477.89	477.83	477.49	
POOL CONTENT-EOM (1000AC.FT)	66.94	67.67	27.10	128.22	34.87	27.97	27.58	118.55	63.35	61.80	62.29	58.79	

LOCK AND DAM NO. 13	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1971 thru 1982	1,274.5	2,347.3	1,756.2	1,434.6	1,532.6	2,853.6	2,612.1	3,029.6	3,438.6	1,737.2	752.3	790.3	23,558.9
WY 1982	960.4	2,524.4	997.5	1,038.4	2,870.1	2,371.7	755.3	4,416.1	7,869.7	3,001.6	1,016.3	236.2	28,057.7
Project Rainfall (inches)													
Avg 1972 thru 1982	3.3	4.2	2.2	1.8	2.2	4.4	2.9	5.0	4.1	3.2	2.3	3.7	39.3
WY 1982	6.2	2.6	0.7	4.9	1.8	1.8	1.2	9.8	5.1	5.9	2.4	0.5	42.9
Deviation	+2.9	-1.6	-1.5	+3.1	-0.4	-2.6	-1.7	+4.8	+1.0	+2.7	+0.1	-2.2	+3.6
Pool Elevation													
End of Month	391.19	391.84	391.67	388.79	391.28	391.40	391.41	389.48	388.88	391.55	391.94	392.02	
Maximum	392.34	392.18	392.24	392.16	392.20	392.16	392.38	392.27	391.36	392.48	392.41	392.33	
Minimum	391.10	390.56	390.92	388.79	388.79	390.99	391.15	388.94	388.62	388.88	391.16	391.18	
Pool Content EOM (1,000 AC. FT.)	53.8	58.0	56.9	40.0	54.3	55.1	55.2	43.6	40.4	56.1	58.7	59.2	

OZARK-JETA TAYLOR LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1972 thru 1982	1,099.9	2,537.0	2,011.4	1,503.7	1,688.1	3,206.8	2,965.0	3,313.4	3,717.8	1,849.0	840.0	828.6	25,560.7
WY 1982	1,160.0	2,648.0	1,077.5	1,176.9	3,196.7	2,430.0	734.3	4,494.6	8,097.4	2,963.6	1,063.6	249.3	29,291.9
Project Rainfall (inches)													
Avg 1973 thru 1982	3.4	4.8	2.8	2.4	2.4	4.9	3.3	5.2	4.6	3.5	2.2	4.1	43.6
WY 1982	7.2	3.8	0.7	5.5	1.2	1.8	1.8	6.5	7.0	3.1	1.8	0.9	41.3
Deviation	+3.8	-1.0	-2.1	+3.1	-1.2	-3.1	-1.5	+1.3	+2.4	-0.4	-0.4	-3.2	-2.3
Pool Elevation													
End of Month	371.60	371.98	371.58	371.22	371.51	371.58	371.98	371.41	368.23	372.08	371.97	371.98	
Maximum	372.22	372.16	372.17	372.39	372.16	372.10	372.04	372.14	371.95	372.17	372.26	372.20	
Minimum	371.42	371.28	370.01	371.22	371.06	371.36	371.26	370.69	368.23	366.76	370.80	370.94	
Pool Content EOM (1,000 AC. FT.)	144.5	148.2	144.3	140.8	143.6	144.3	148.2	142.7	114.5	149.3	148.1	148.2	

DARDANELLE LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1966 thru 1982	1,218.0	2,122.7	1,865.1	1,556.6	1,721.3	2,749.3	2,898.7	3,326.0	3,191.8	1,734.0	831.4	852.0	24,066.9
WY 1982	1,078.6	2,516.6	1,106.6	1,202.8	3,305.9	2,441.4	834.1	4,270.6	8,010.1	3,201.0	1,063.7	267.9	29,299.3
Project Rainfall (inches)													
Avg 1971 thru 1982	4.0	4.6	4.0	2.8	2.9	5.4	4.0	5.5	4.7	2.3	3.0	3.8	47.0
WY 1982	5.7	2.7	0.6	5.6	2.1	2.7	4.2	4.4	5.4	2.5	2.7	0.3	38.9
Deviation	+1.7	-1.9	-3.4	+2.8	-0.8	-2.7	+0.2	-1.1	+0.7	+0.2	-0.3	-3.5	-8.1
Pool Elevation													
End of Month	337.28	337.48	337.37	337.94	337.92	336.99	337.40	338.13	337.85	336.51	337.40	336.60	
Maximum	338.20	338.22	338.00	338.20	338.24	338.23	337.75	338.23	338.33	338.18	337.95	337.78	
Minimum	336.76	337.18	336.53	336.90	337.79	336.61	336.25	337.07	337.82	336.51	336.51	336.56	
Pool Content EOM (1,000 AC. FT.)	462.1	468.8	465.1	484.2	483.5	452.4	466.1	490.8	481.2	437.1	466.1	440.0	

BLUE MOUNTAIN LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1948 thru 1982	6.7	21.0	29.7	39.1	44.2	64.1	53.5	55.2	17.1	10.8	5.4	5.3	354.1
WY 1982	37.0	21.1	15.0	51.8	70.8	45.1	6.2	23.6	20.4	5.0	2.2	0.1	298.3
Releases (1,000 AC. FT.)													
Avg 1948 thru 1982	5.5	13.3	30.2	34.3	41.2	48.8	43.7	52.4	36.4	18.8	12.4	7.0	344.0
WY 1982	34.7	18.5	18.9	13.8	103.3	49.0	3.1	11.4	25.3	6.5	4.2	0.8	289.5
Basin Rainfall (inches)													
Avg 1948 thru 1982	3.2	3.3	3.2	2.7	2.8	4.1	4.2	5.2	3.6	4.1	3.3	3.6	43.3
WY 1982	7.1	2.8	0.6	5.0	2.5	2.2	2.3	6.5	4.5	3.7	3.3	0.4	40.9
Deviation	+3.9	-0.5	-2.6	+2.3	-0.3	-1.9	-1.9	+1.3	+0.9	-0.4	0.0	-3.2	-2.4
Pool Elevation													
End of Month	384.85	385.58	384.21	394.30	385.71	384.23	385.03	388.43	386.70	385.90	384.92	384.30	
Maximum	392.00	386.28	386.83	394.30	398.14	388.66	385.03	388.43	389.31	387.19	386.15	384.92	
Minimum	384.03	384.12	384.12	384.10	385.71	384.10	384.07	385.03	386.55	385.84	384.92	384.30	
Pool Content EOM (1,000 AC. FT.)	27.2	29.5	25.3	63.0	29.9	25.3	27.8	39.1	33.1	30.5	27.5	25.6	

LOCK AND DAM NO. 9	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1970 thru 1982	1,355.5	2,566.6	2,597.8	1,727.3	1,782.5	3,224.5	3,282.2	3,593.6	3,660.1	1,747.3	805.6	897.4	27,240.4
WY 1982	1,136.3	2,510.1	1,184.3	1,196.6	3,339.8	2,469.3	960.0	4,007.3	8,232.1	2,978.8	1,064.5	283.3	29,362.4
Project Rainfall (inches)													
Avg 1971 thru 1982	3.6	4.3	3.7	2.8	2.6	4.7	4.0	5.0	4.8	2.7	2.8	4.0	45.0
WY 1982	7.5	1.4	0.5	6.7	1.4	2.0	3.7	3.9	4.1	3.5	1.9	1.0	37.6
Deviation	+3.9	-2.9	-3.2	+3.9	-1.2	-2.7	-0.3	-1.1	-0.7	+0.8	-0.9	-3.0	-7.4
Pool Elevation													
End of Month	286.70	285.92	286.29	287.95	286.51	286.68	286.57	285.92	284.11	287.59	285.66	286.37	
Maximum	286.97	287.00	287.34	287.95	287.95	287.10	287.00	286.97	384.67	287.91	287.66	287.65	
Minimum	285.40	285.26	284.75	284.75	284.83	284.70	284.90	284.47	284.10	281.97	285.41	285.12	
Pool Content EOM (1,000 AC. FT.)	63.0	58.7	60.7	70.1	61.9	62.8	62.2	58.7	49.4	68.0	57.3	61.1	

TOAD SUCK FERRY LOCK AND DAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1970 thru 1982	1,277.3	2,597.9	2,264.2	1,908.5	1,962.6	3,557.9	3,467.5	3,742.0	3,756.1	2,380.0	815.2	915.3	28,644.5
WY 1982	1,145.7	2,523.4	1,208.0	1,213.5	3,689.9	2,609.3	1,070.7	4,134.4	8,301.0	3,143.6	1,086.2	302.8	30,428.5
Project Rainfall (inches)													
Avg 1971 thru 1982	3.7	4.8	4.1	3.0	2.8	4.9	4.1	5.1	5.1	2.4	2.5	3.9	46.4
WY 1982	7.2	1.2	0.6	5.6	1.9	3.0	4.5	4.3	5.7	1.5	3.0	0.7	39.2
Deviation	+3.5	-3.6	-3.5	+2.6	-0.9	-1.9	+0.4	-0.8	+0.6	-0.9	+0.5	-3.2	-[illegible]
Pool Elevation													
End of Month	265.30	264.72	265.42	270.90	264.96	265.10	265.02	266.80	266.78	265.10	265.50	265.28	
Maximum	265.45	265.57	265.52	364.88	271.40	265.62	265.60	260.81	270.49	266.78	265.90	265.82	
Minimum	264.48	264.20	264.20	264.65	263.92	264.04	264.72	264.27	266.00	263.51	264.78	264.90	
Pool Content EOM (1,000 AC. FT.)	34.3	31.9	34.8	74.9	32.8	33.4	33.1	45.0	44.8	33.4	35.2	34.2	

NIMROD LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1944 thru 1982	11.1	34.3	57.6	68.5	85.9	102.4	90.1	96.5	36.2	12.6	6.3	7.6	609.1
WY 1982	15.4	15.4	10.1	51.9	114.8	125.2	63.9	65.5	53.2	4.8	8.0	0.1	528.3
Releases (1,000 AC. FT.)													
Avg 1944 thru 1982	8.9	24.8	54.5	61.6	76.5	99.8	93.0	94.8	51.4	24.2	11.1	10.1	610.7
WY 1982	15.3	13.7	10.0	23.8	142.6	124.5	51.8	59.9	51.9	10.6	12.0	0.5	516.6
Basin Rainfall (inches)													
Avg 1944 thru 1982	3.4	3.6	3.6	3.2	3.5	5.0	4.7	5.7	4.0	4.1	3.1	3.7	47.6
WY 1982	5.6	2.1	0.6	4.9	2.9	3.2	4.1	6.7	5.2	3.6	2.2	0.2	41
Deviation	+2.2	-1.5	-3.0	+1.7	-0.6	-1.8	-0.6	+1.0	+1.2	-0.5	-0.9	-3.5	-6.3
Pool Elevation													
End of Month	341.98	342.35	342.28	348.20	342.08	342.03	344.84	345.70	345.66	344.04	342.74	342.07	
Maximum	343.50	343.20	342.80	348.20	353.53	353.48	348.33	347.17	346.27	345.72	344.11	342.74	
Minimum	341.95	341.98	342.05	342.03	341.98	342.02	342.03	344.81	344.53	344.02	342.74	342.07	
Pool Content EOM (1,000 AC. FT.)	28.9	30.3	30.0	57.7	29.3	29.1	40.3	44.5	44.3	37.0	31.6	29.3	

MURRAY LOCK AND DAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1970 thru 1982	1,427.3	2,623.7	2,497.1	1,994.7	2,071.9	3,705.2	3,645.1	4,089.7	3,886.1	1,784.8	799.7	923.6	29,448.9
WY 1982	1,128.8	2,527.2	1,156.4	1,249.9	3,962.6	2,827.5	1,196.6	4,172.3	8,737.5	3,068.9	1,035.6	236.1	31,299.4
Project Rainfall (inches)													
Avg 1970 thru 1982	3.9	4.8	3.7	3.3	2.8	4.3	5.4	5.7	4.2	2.7	2.7	3.8	47.3
WY 1982	5.2	1.6	0.6	5.6	2.2	2.6	6.6	5.1	4.5	4.9	1.2	0.2	40.3
Deviation	+1.3	-3.2	-3.1	+2.3	-0.6	-1.7	+1.2	-0.6	+0.3	+2.2	-1.5	-3.6	-7.0
Pool Elevation													
End of Month	249.69	249.01	249.56	247.68	248.80	249.19	249.72	247.80	246.90	250.41	250.89	249.83	
Maximum	249.90	249.69	249.79	250.17	249.10	249.80	249.91	249.75	247.99	250.66	250.93	250.87	
Minimum	248.90	248.41	248.81	247.68	247.10	248.41	248.98	247.40	246.04	246.85	250.41	249.51	
Pool Content EOM (1,000 AC. FT.)	94.2	87.2	92.9	75.3	85.3	89.1	94.5	76.3	68.8	102.0	107.1	95.6	

DAVID D. TERRY LOCK AND DAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1969 thru 1982	1,331.8	2,481.9	2,607.6	2,224.0	2,366.0	3,780.5	3,775.9	4,081.0	3,946.2	1,912.4	842.6	929.5	30,279.4
WY 1982	1,159.2	2,510.1	1,174.8	1,193.7	3,898.2	2,834.0	1,176.2	4,030.3	8,622.7	3,178.0	1,105.4	285.3	31,167.9
Project Rainfall (inches)													
Avg 1971 thru 1982	3.6	4.6	3.8	4.0	2.7	4.4	4.9	5.3	4.5	3.5	2.4	3.4	47.1
WY 1982	4.1	1.3	0.5	7.3	2.2	1.6	9.0	7.3	4.3	1.0	3.2	1.5	43.3
Deviation	+0.5	-3.3	-3.3	+3.3	-0.5	-2.8	+4.1	+2.0	-0.2	-2.5	+0.8	-1.9	-3.8
Pool Elevation													
End of Month	231.10	231.00	231.34	230.50	230.96	231.00	231.15	230.59	229.21	231.58	231.81	231.22	
Maximum	231.45	231.37	231.55	231.60	231.30	231.34	231.40	231.41	231.05	231.77	232.33	232.01	
Minimum	230.91	230.05	230.84	229.36	229.50	230.35	230.81	230.15	228.83	228.73	230.40	231.16	
Pool Content EOM (1,000 AC. FT.)	50.0	49.5	51.1	47.6	49.3	49.5	50.2	47.9	42.2	52.2	53.2	50.5	

LOCK AND DAM NO. 5	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1970 thru 1982	1,393.9	2,654.9	2,453.4	2,077.3	2,012.3	3,804.8	3,788.4	4,065.0	3,969.4	1,863.5	836.4	959.9	29,879.2
WY 1982	1,199.6	2,532.7	1,233.7	1,204.0	3,939.8	2,959.8	1,291.9	4,029.3	8,394.4	3,227.4	1,160.0	284.4	31,457.0
Project Rainfall (inches)													
Avg 1972 thru 1982	3.6	4.7	3.9	3.5	3.1	4.6	4.7	6.0	4.0	3.4	2.2	3.7	47.
WY 1982	6.0	1.5	0.6	4.5	4.8	1.0	7.4	6.3	5.4	2.7	1.2	1.0	42.4
Deviation	+2.4	-3.2	-3.3	+1.0	+1.7	-3.6	+2.7	+0.3	+0.6	-0.7	-1.0	-2.7	-5.0
Pool Elevation													
End of Month	213.09	213.18	213.09	211.48	212.39	213.15	213.62	212.16	211.00	213.78	213.62	213.30	
Maximum	213.37	213.42	213.43	213.40	213.12	213.30	213.77	213.85	212.70	213.78	214.08	213.81	
Minimum	212.48	212.00	212.66	211.48	210.86	212.08	212.37	211.74	210.81	210.82	213.32	213.26	
Pool Content EOM (1,000 AC. FT.)	62.0	62.6	62.0	51.9	57.4	62.4	65.8	55.9	49.1	66.9	65.8	63.5	

LOCK AND DAM NO. 4	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1970 thru 1982	1,401.4	2,687.1	2,501.6	2,143.1	2,220.9	3,913.4	3,937.7	4,218.0	4,129.6	1,893.2	841.9	972.7	30,860.6
WY 1982	1,153.4	2,536.1	1,237.3	1,232.9	4,143.1	3,005.8	1,376.9	4,307.0	9,143.3	3,371.0	1,153.2	271.5	32,931.5
Project Rainfall (inches)													
Avg 1972 thru 1982	3.5	4.3	4.0	4.2	3.1	4.9	4.5	6.2	3.9	3.4	3.1	4.5	49.6
WY 1982	4.5	2.0	0.7	5.4	3.7	1.1	7.4	3.7	4.5	6.5	5.7	1.0	46.2
Deviation	+1.0	-2.3	-3.3	+1.2	+0.6	-3.8	+2.9	-2.5	+0.6	+3.1	+2.6	-3.5	-3.4
Pool Elevation													
End of Month	196.20	196.10	196.08	195.45	195.20	196.27	196.00	195.20	194.58	196.90	196.65	196.31	
Maximum	196.48	196.53	196.38	196.55	196.05	196.66	196.55	196.54	196.55	196.90	196.93	196.93	
Minimum	195.48	195.15	195.72	195.25	194.40	195.15	195.36	194.85	193.87	193.50	196.11	193.65	
Pool Content EOM (1,000 AC. FT.)	71.7	71.1	70.9	67.4	66.1	72.2	70.4	66.1	62.7	76.3	74.7	72.4	

LOCK AND DAM NO. 3	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1970 thru 1982	1,398.3	2,692.3	2,510.3	2,151.4	2,246.2	3,930.1	3,992.9	4,305.8	4,148.6	1,906.8	829.0	955.8	31,067.5
WY 1982	1,153.4	2,539.5	1,221.4	1,216.7	4,185.2	3,024.8	1,384.9	4,452.6	9,146.5	3,606.2	1,115.7	231.7	33,278.6
Project Rainfall (inches)													
Avg 1971 thru 1982	3.4	4.3	3.8	4.2	2.8	4.8	4.3	5.3	3.6	3.5	3.6	3.9	47.5
WY 1982	4.7	1.7	0.7	4.2	3.4	2.7	6.9	1.5	5.5	1.1	0.8	1.9	35.1
Deviation	+1.3	-2.6	-3.1	0.0	+0.6	-2.1	+2.6	-3.8	+1.9	-2.4	-2.8	-2.0	-12.4
Pool Elevation													
End of Month	182.17	182.03	182.42	181.50	181.70	182.30	182.00	181.72	182.25	182.70	182.90	182.30	
Maximum	182.54	182.40	182.47	182.46	182.15	182.35	182.70	182.42	183.30	182.98	182.98	182.99	
Minimum	181.82	181.22	181.86	181.42	180.48	181.22	181.82	180.32	180.68	180.31	181.92	181.82	
Pool Content EOM (1,000 AC. FT.)	47.1	46.5	48.1	44.5	45.2	47.6	46.4	45.3	47.4	49.2	50.0	47.6	

LOCK AND DAM NO. 2	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Releases (1,000 AC. FT.)													
Avg 1970 thru 1982	1,394.3	2,693.7	2,602.2	2,140.9	2,313.4	4,014.2	4,138.1	3,801.4	4,165.5	1,905.7	830.8	1,714.4	31,714.6
WY 1982	1,147.3	2,524.0	1,216.1	1,168.7	4,189.0	3,046.3	1,504.1	4,132.2	9,107.2	3,645.1	1,117.7	250.0	33,047.7
Project Rainfall (inches)													
Avg 1971 thru 1982	3.5	5.3	4.4	5.3	3.9	6.9	5.1	5.5	4.4	3.2	3.1	4.0	54
WY 1982	4.1	2.0	0.8	4.9	4.6	1.7	10.6	2.7	3.7	2.3	1.5	3.9	42.8
Deviation	+0.6	-3.3	-3.6	-0.4	+0.7	-5.2	+5.5	-2.8	-0.7	-0.9	-1.6	-0.1	-11.8
Pool Elevation													
End of Month	162.11	162.84	162.84	161.62	161.85	162.26	162.90	161.68	161.80	163.39	162.95	162.17	
Maximum	162.40	162.98	163.15	163.16	162.15	162.44	163.16	163.21	162.85	191.86	163.43	163.32	
Minimum	161.86	161.24	161.88	161.62	161.43	161.46	161.86	161.41	161.15	160.74	162.24	162.08	
Pool Content EOM (1,000 AC. FT.)	111.3	119.4	119.4	106.0	108.5	113.0	120.1	106.7	108.0	125.9	120.6	112.0	

NORRELL LOCK NO. 1 (No basic data collected)

ALTUS LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1938 THRU 1981	7.13	2.75	3.44	3.77	5.05	5.93	9.57	29.65	20.95	8.39	3.01	3.01	102.7
FY 1982	2.63	2.86	2.20	2.83	2.97	3.98	1.75	64.31	40.00	9.39	2.05	0.55	135.5
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	0.08	0.12	0.09	0.00	0.21	0.87	0.71	25.57	8.17	12.72	9.71	0.71	59.0
FY 1982	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.06	0.89	0.79	0.62	0.82	1.14	2.02	3.93	3.22	2.22	2.57	2.34	22.62
FY 1982	4.41	1.35	0.03	0.46	0.01	0.65	0.44	9.11	5.45	2.96	0.57	0.71	26.15
DEVIATION	2.35	0.46	-0.76	-0.16	-0.81	-0.49	-1.58	5.18	2.23	0.74	-2.00	-1.63	3.53
POOL ELEVATION													
END OF MONTH	1527.00	1529.30	1529.22	1530.40	1531.62	1532.80	1533.06	1551.23	1558.02	1555.69	1550.11	1547.35	
MAXIMUM	1527.00	1528.30	1529.22	1530.40	1531.62	1532.80	1533.09	1551.23	1558.02	1558.44	1555.81	1550.11	
MINIMUM	1525.73	1527.00	1529.30	1529.22	1530.40	1531.62	1532.80	1533.06	1551.23	1555.63	1550.11	1547.35	
POOL CONTENT-EOM (1000AC.FT)	14.21	16.72	18.59	21.12	23.87	26.66	27.29	91.35	128.45	114.79	86.02	73.83	

MOUNTAIN PARK DAM	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1926 THRU 1981	1.51	0.65	0.36	0.25	0.33	0.66	1.38	5.73	4.07	1.28	0.73	1.77	18.5
FY 1982	8.04	0.38	0.05	0.05	0.72	3.47	1.87	26.89	11.51	1.27	0.36	0.08	56.7
RELEASES(1000AC.FT.)													
AVG 1981 THRU 1982	0.00	0.00	0.00	0.00	0.00	0.10	0.12	0.11	0.60	1.95	0.00	0.00	2.9
FY 1982	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	3.84	0.00	0.00	5.0
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.59	1.34	1.13	1.01	1.17	1.[illegible]	[illegible]	4.67	3.40	2.28	2.27	2.98	26.85
FY 1982	8.46	1.23	0.13	1.03	0.25	1.96	[illegible]	[illegible]	6.63	4.92	0.28	1.26	36.94
DEVIATION	5.87	-0.11	-1.00	0.02	-0.92	0.41	-1.17	4.83		2.44	-1.99	-1.72	10.09
POOL ELEVATION													
END OF MONTH	1407.11	1406.94	1406.67	1406.43	1406.31	1406.54	1406.36	1410.59	1411.72	1410.95	1410.17	[illegible]	
MAXIMUM	1407.38	1407.11	1406.95	1406.67	1406.43	1406.69	1406.54	1410.59	1411.96	1411.72	1410.96	1410.17	
MINIMUM	1405.74	1406.86	1406.67	1406.43	1406.31	1406.18	1406.25	1406.33	1410.37	1410.86	1410.17	1409.43	
POOL CONTENT-EOM (1000AC.FT)	66.23	65.31	63.90	62.63	62.00	63.21	62.27	86.40	93.67	88.66	83.77	79.39	

LAKE KEMP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1924 THRU 1981	22.20	9.34	5.74	3.73	5.59	7.58	12.79	38.02	25.28	15.57	14.91	27.01	189.4
FY 1982	12.63	1.16	0.24	1.33	2.12	7.00	0.86	79.78	67.08	6.65	1.76	3.07	183.1
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	3.54	0.55	2.35	0.00	0.57	4.09	3.79	2.35	7.35	15.96	12.59	5.78	58.9
FY 1982	2.12	0.00	0.00	0.00	0.00	0.00	6.33	0.77	1.57	9.94	14.01	4.13	38.9
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.52	1.06	0.97	0.82	0.99	1.10	1.94	3.56	3.70	2.01	2.15	2.88	22.69
FY 1982	1.32	0.24	0.03	0.04	0.44	0.90	0.07	6.26	7.22	0.49	0.67	1.03	18.71
DEVIATION	-1.19	-0.82	-0.94	-0.78	-0.55	-0.20	-1.87	2.70	4.52	-1.52	-1.48	-1.85	-3.98
POOL ELEVATION													
END OF MONTH	1135.15	1135.05	1134.98	1135.10	1135.22	1135.61	1134.43	1140.36	1144.99	1143.96	1142.43	1141.75	
MAXIMUM	1135.24	1135.17	1135.09	1135.10	1135.24	1135.66	1135.66	1140.99	1144.95	1144.99	1143.98	1142.43	
MINIMUM	1133.72	1135.03	1134.96	1134.83	1135.07	1135.20	1134.43	1134.38	1140.96	1143.98	1142.43	1141.75	
POOL CONTENT-EOM													
(1000AC.FT)	158.55	157.74	157.03	158.10	159.18	162.59	152.47	223.67	282.15	267.69	244.48	234.70	

MAURICE LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1925 THRU 1981	7.21	4.14	3.26	1.71	3.76	5.22	7.51	26.25	17.73	3.32	1.70	4.28	86.7
FY 1982	14.75	1.97	0.29	4.10	2.98	9.35	3.33	123.27	54.47	21.42	2.24	1.12	242.7
RELEASES(1000AC.FT.)													
AVG 1982		INITIAL FILLING OF CONSERVATION POOL - MAY 1982							80.46	24.03	0.00	0.00	104.49
FY 1982	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.52	80.46	24.03	0.00	0.00	129.01
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.05	1.76	1.47	1.29	1.47	1.93	2.78	5.11	3.56	2.37	2.38	3.34	30.51
FY 1982	7.76	1.76	0.09	1.32	0.79	2.23	0.42	14.77	5.61	3.92	1.69	1.30	42.04
DEVIATION	4.71	-0.02	-1.38	0.23	-0.68	0.30	-2.16	9.66	2.05	1.55	-0.69	-2.04	11.53
POOL ELEVATION													
END OF MONTH	945.24	945.21	945.16	945.36	945.56	946.27	945.21	955.37	952.60	951.74	950.88	950.46	
MAXIMUM	945.32	945.24	945.19	945.36	945.56	946.27	945.33	955.52	955.59	952.91	951.75	950.90	
MINIMUM	945.17	945.17	945.16	945.05	945.36	945.62	946.06	946.20	951.61	951.52	950.88	950.42	
POOL CONTENT-EOM													
(1000AC.FT)	145.07	144.82	144.41	146.05	147.59	153.70	153.17	247.80	215.96	206.59	197.65	193.28	

FOSS RESERVOIR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1926 THRU 1980	3.53	1.79	1.23	1.31	1.79	2.86	9.34	15.36	12.37	3.69	3.11	2.87	59.3
FY 1982	4.42	0.06	0.00	0.48	1.79	3.39	1.78	57.59	20.52	7.87	2.45	0.48	100.8
RELEASES(1000AC.FT.)													
AVG 1978 THRU 1982	2.49	0.24	0.19	0.23	0.56	0.22	0.21	3.64	12.24	1.99	0.45	0.28	22.7
FY 1982	0.31	0.30	0.11	0.31	0.28	0.31	0.30	14.21	34.12	3.53	0.31	0.30	54.4
RAINFALL(INCHES)													
AVG 1930 THRU 1977	1.98	1.08	0.76	0.63	0.88	1.26	2.29	4.05	3.14	2.00	2.49	2.27	22.83
FY 1982	5.87	1.94	0.01	0.36	0.11	0.88	0.45	10.37	5.03	3.39	0.70	0.38	29.49
DEVIATION	3.89	0.86	-0.75	-0.27	-0.77	-0.38	-1.84	6.32	1.89	1.39	-1.79	-1.89	6.66
POOL ELEVATION													
END OF MONTH	1636.74	1636.47	1636.25	1636.13	1636.19	1636.40	1636.20	1642.50	1639.97	1640.00	1639.61	1639.06	
MAXIMUM	1636.78	1636.75	1636.47	1636.25	1636.19	1636.41	1636.40	1642.84	1642.50	1640.00	1642.02	1639.61	
MINIMUM	1636.15	1636.47	1636.25	1635.95	1636.13	1636.19	1636.10	1636.14	1639.58	1639.85	1639.61	1639.06	
POOL CONTENT-EOM (1000AC.FT)	144.79	143.22	141.94	141.24	141.59	142.81	141.64	181.35	164.55	164.74	162.28	158.81	

FORT COBB RESERVOIR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1926 THRU 1981	2.94	1.88	2.05	2.27	2.38	3.09	4.10	6.26	5.89	2.86	1.85	2.41	38.0
FY 1982	4.81	1.59	0.83	4.04	2.41	2.75	1.45	48.58	5.87	0.57	0.31	0.53	73.7
RELEASES(1000AC.FT.)													
AVG 1978 THRU 1982	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.29	7.44	1.15	0.00	0.00	9.0
FY 1982	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.68	8.06	0.00	0.00	32.7
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.47	1.37	1.19	0.99	1.11	1.60	2.63	4.62	3.25	2.37	2.50	3.17	27.27
FY 1982	6.38	2.46	0.13	1.74	0.52	1.70	0.80	19.22	3.95	2.70	0.60	1.27	41.47
DEVIATION	3.91	1.09	-1.06	0.75	-0.59	0.10	-1.83	14.60	0.70	0.33	-1.90	-1.90	14.20
POOL ELEVATION													
END OF MONTH	1338.06	1338.11	1338.01	1338.89	1339.18	1339.35	1339.14	1349.15	1344.65	1342.15	1341.37	1340.79	
MAXIMUM	1338.19	1338.16	1338.14	1339.00	1339.20	1339.38	1339.35	1349.15	1349.44	1344.65	1342.15	1341.37	
MINIMUM	1337.05	1338.03	1337.99	1337.50	1338.89	1339.15	1339.04	1339.14	1344.61	1342.15	1341.37	1340.79	
POOL CONTENT-EOM (1000AC.FT)	64.87	65.05	64.69	67.90	68.98	69.62	68.83	112.72	91.35	80.63	77.47	75.16	

RED RIVER BASIN

ARBUCKLE RESERVOIR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1926 THRU 1981	3.80	1.24	3.29	3.07	4.90	5.63	8.07	12.49	7.59	2.94	2.12	3.74	60.9
FY 1982	24.71	4.62	1.99	3.75	9.49	4.22	2.39	53.31	17.72	3.14	0.71	0.16	126.2
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	2.25	0.79	0.36	0.13	1.71	0.61	2.39	8.23	11.84	0.43	0.35	0.15	29.2
FY 1982	14.85	4.48	1.55	0.06	11.31	3.55	1.19	29.38	36.22	2.14	1.59	0.06	106.4
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.16	2.32	2.10	1.76	2.21	2.90	3.95	5.55	3.86	2.57	2.84	3.80	37.02
FY 1982	13.15	1.95	0.14	2.07	1.84	1.17	0.89	15.04	5.37	2.46	1.08	0.87	45.93
DEVIATION	9.99	-0.47	-1.96	0.31	-0.37	-1.73	-3.06	9.49	1.51	-0.11	-1.76	-2.93	8.91
POOL ELEVATION													
END OF MONTH	872.73	872.44	872.13	873.20	872.19	872.22	871.99	880.78	873.14	872.73	871.57	870.77	
MAXIMUM	876.55	873.07	872.44	873.20	873.63	872.39	872.38	881.17	880.78	873.14	872.75	871.57	
MINIMUM	869.61	871.99	872.02	872.01	872.19	872.01	871.94	871.99	872.09	872.31	871.57	870.77	
POOL CONTENT-EOM													
(1000AC.FT)	74.14	73.45	72.71	75.26	72.85	72.92	72.38	95.30	75.12	74.14	71.40	69.55	

RED RIVER BASIN

LAKE TEXOMA	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1906 THRU 1981	366.34	199.55	180.83	140.89	166.47	227.04	413.04	812.92	688.44	214.49	177.99	240.90	3828.9
FY 1982	2246.68	240.99	67.54	133.78	281.55	197.75	105.52	2542.03	1731.97	502.53	146.18	48.79	8245.3
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	237.60	191.28	110.89	116.40	90.60	69.12	110.77	348.83	842.03	312.10	148.22	104.46	2682.3
FY 1982	1099.27	979.17	251.59	186.29	138.01	148.37	173.38	805.49	2276.41	1346.06	216.23	94.51	7614.8
RAINFALL(INCHES)													
AVG 1930 THRU 1977	2.58	1.38	1.23	1.13	1.28	1.62	2.52	4.28	3.30	2.25	2.34	2.92	26.83
FY 1982	7.00	1.34	0.07	0.99	0.78	1.34	0.57	10.81	5.69	3.02	0.70	1.13	33.44
DEVIATION	4.42	-0.04	-1.16	-0.14	-0.50	-0.28	-1.95	6.53	2.39	0.77	-1.64	-1.79	6.61
POOL ELEVATION													
END OF MONTH	624.20	617.43	615.15	614.40	616.05	616.35	615.14	631.71	626.51	617.53	616.19	615.23	
MAXIMUM	630.71	624.20	617.51	615.15	616.15	616.99	616.57	631.71	632.11	626.51	617.66	616.19	
MINIMUM	611.17	617.30	615.15	613.22	614.40	616.05	615.14	614.83	626.13	617.49	616.19	615.23	
POOL CONTENT-EOM													
(1000AC.FT)	3344.18	2692.00	2488.80	2430.00	2561.12	2587.07	2488.00	4204.03	3594.71	2691.00	2573.23	2495.20	

PAT MAYSE LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1937 THRU 1981	4.89	7.23	7.99	6.38	11.78	12.30	16.04	15.77	10.14	3.64	1.49	4.15	101.8
FY 1982	21.14	21.78	0.34	8.40	9.57	14.70	2.86	109.94	23.61	6.38	0.59	0.06	219.4
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	0.51	3.15	1.03	0.79	3.24	6.02	8.43	9.70	15.07	6.90	0.94	0.00	55.8
FY 1982	3.53	21.88	2.53	0.95	6.92	14.29	4.00	37.21	57.10	29.98	2.99	0.00	181.4
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.22	3.32	3.15	2.75	3.10	3.75	4.85	5.27	4.06	3.36	2.71	4.18	43.72
FY 1982	5.83	2.93	0.39	3.12	1.20	2.17	2.34	10.53	6.00	4.98	1.33	0.05	40.87
DEVIATION	2.61	-0.39	-2.76	0.37	-1.90	-1.58	-2.51	5.26	1.94	1.62	-1.38	-4.13	-2.85
POOL ELEVATION													
END OF MONTH	452.30	451.92	451.11	452.09	452.34	451.98	451.37	461.47	456.46	452.16	450.91	450.12	
MAXIMUM	452.30	454.58	451.92	452.09	452.44	453.27	452.03	462.41	461.47	456.46	452.18	450.91	
MINIMUM	449.61	451.84	451.11	450.90	451.63	451.98	451.37	451.17	456.46	452.03	450.91	450.12	
POOL CONTENT-EOM (1000AC.FT)	132.46	130.11	125.17	131.16	132.71	130.48	126.76	196.71	159.67	131.59	123.97	119.31	

RED RIVER BASIN

SARDIS LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1926 THRU 1981	9.07	15.39	20.38	21.79	26.99	30.93	39.85	39.52	19.88	6.87	2.66	9.87	245.9
FY 1982	78.29	34.60	9.55	61.21	45.46	23.68	4.74	75.87	18.48	6.51	0.96	1.46	360.8
RELEASES(1000AC.FT.)													
LAKE HAS NOT FILLED													
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.38	3.49	2.80	2.53	3.03	3.64	4.84	5.89	4.40	3.60	3.34	4.56	45.50
FY 1982	11.39	3.15	0.01	5.78	1.15	1.12	1.11	8.04	3.32	5.60	1.08	0.71	42.46
DEVIATION	8.01	-0.34	-2.79	3.25	-1.88	-2.52	-3.73	2.15	-1.08	2.00	-2.26	-3.85	-3.04
POOL ELEVATION													
END OF MONTH	546.60	548.20	536.20	569.20	545.30	536.70	536.20	550.50	535.80	537.20	534.30	534.20	
MAXIMUM	572.40	559.80	551.40	569.20	569.20	546.80	538.00	568.50	553.50	547.00	537.20	543.90	
MINIMUM	534.60	536.00	536.00	536.20	542.90	536.70	535.00	535.80	535.80	534.40	534.30	534.20	
POOL CONTENT-EOM (1000AC.FT)	1.01	1.48	0.03	43.01	0.72	0.04	0.03	2.40	0.03	0.05	0.01	0.01	

RED RIVER BASIN

HUGO LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1926 THRU 1964	60.79	74.01	117.34	160.37	177.57	171.23	257.85	250.16	114.02	56.90	19.14	49.05	1485.4
FY 1982	231.65	142.61	67.00	179.21	313.23	143.25	46.77	539.62	257.30	44.21	10.75	2.01	1977.6
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	36.05	43.77	53.18	69.85	142.23	191.60	248.51	191.38	175.52	56.35	17.98	13.07	1239.5
FY 1982	102.33	238.23	73.22	77.72	397.80	156.14	41.04	167.90	391.74	263.13	19.06	12.87	1941.2
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.67	3.76	3.20	2.89	3.30	3.92	5.12	5.99	4.33	3.61	3.42	4.59	47.76
FY 1982	9.12	4.18	0.04	4.40	1.09	1.26	1.73	10.77	5.36	3.95	2.10	0.46	44.46
DEVIATION	5.45	0.42	-3.16	1.51	-2.21	-2.66	-3.39	4.78	1.03	0.34	-1.32	-4.09	-3.30
POOL ELEVATION													
END OF MONTH	411.33	405.30	404.80	411.27	405.75	404.57	404.78	423.23	417.34	404.55	403.43	402.17	
MAXIMUM	414.72	414.40	406.15	411.27	415.47	405.81	405.35	423.55	425.09	417.34	404.72	403.43	
MINIMUM	402.24	404.50	404.49	404.45	404.65	404.53	404.51	404.53	417.34	404.50	403.43	402.17	
POOL CONTENT-EOM (1000AC.FT)	263.21	168.38	161.60	262.15	174.50	158.49	161.33	929.97	384.68	158.22	143.73	128.19	

RED RIVER BASIN

PINE CREEK LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1923 THRU 1981	22.63	38.04	56.04	60.24	78.03	82.93	95.41	104.78	42.28	17.31	8.38	22.66	628.7
FY 1982	35.86	35.50	23.46	108.04	91.64	71.21	21.90	262.78	89.65	11.02	2.67	0.30	754.0
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	22.21	9.52	27.26	35.95	56.37	85.88	82.27	86.67	79.88	12.68	6.71	5.17	510.6
FY 1982	33.13	32.40	27.63	41.96	151.77	74.16	4.90	138.24	208.40	19.28	6.24	3.87	742.0
RAINFALL(INCHES)													
AVG 1930 THRU 1977	3.80	3.90	3.59	3.17	3.52	4.25	5.24	6.12	4.36	3.91	3.66	4.63	50.15
FY 1982	6.68	1.87	0.04	3.48	0.63	1.30	1.48	7.23	3.71	2.48	2.18	0.49	31.57
DEVIATION	2.88	-2.03	-3.55	0.31	-2.89	-2.95	-3.76	1.11	-0.65	-1.43	-1.48	-4.14	-18.58
POOL ELEVATION													
END OF MONTH	438.68	439.50	438.35	450.80	439.50	438.53	442.29	459.83	442.69	440.39	439.11	437.82	
MAXIMUM	442.23	441.60	440.17	450.80	452.17	441.27	442.29	462.29	459.83	442.71	440.57	439.11	
MINIMUM	437.63	438.10	437.92	438.11	439.05	438.00	438.53	442.29	442.55	440.33	439.11	437.82	
POOL CONTENT-EOM (1000AC.FT)	56.37	59.64	55.10	120.91	59.64	55.79	71.86	195.62	73.76	63.35	58.06	53.09	

BROKEN BOW LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
INFLOWS(1000AC.FT.)													
AVG 1930 THRU 1981	34.81	58.40	95.11	111.71	114.40	140.87	130.36	138.16	52.17	26.71	14.15	23.55	940.4
FY 1982	63.51	61.17	24.75	110.56	115.87	122.80	72.34	304.48	125.95	6.56	1.33	2.46	1011.8
RELEASES(1000AC.FT.)													
AVG 1976 THRU 1982	23.51	20.88	45.64	63.48	59.03	83.62	109.79	87.83	120.30	51.97	37.54	23.71	727.3
FY 1982	16.99	9.92	51.46	61.89	116.64	93.09	92.73	155.63	210.25	36.89	60.05	25.15	927.7
RAINFALL(INCHES)													
AVG 1930 THRU 1977	4.20	4.08	4.12	3.76	3.85	4.86	5.32	6.15	4.38	4.25	3.82	4.53	53.32
FY 1982	4.55	2.85	0.04	1.70	0.48	1.85	2.01	12.13	6.71	3.12	2.42	0.22	38.08
DEVIATION	0.35	-1.23	-4.08	-2.06	-3.37	-3.01	-3.31	5.98	2.33	-1.13	-1.40	-4.31	-15.24
POOL ELEVATION													
END OF MONTH	590.38	594.21	592.07	595.58	595.52	597.11	595.35	605.41	599.18	596.51	591.70	589.58	
MAXIMUM	590.38	594.21	595.28	595.58	596.83	599.60	597.23	608.84	607.87	599.18	596.56	591.70	
MINIMUM	586.17	590.38	592.07	588.50	594.79	595.34	595.35	594.97	599.18	596.43	591.70	589.58	
POOL CONTENT-EOM (1000AC.FT)	794.27	844.91	816.37	863.51	862.69	884.56	860.37	1004.44	913.55	876.28	811.50	783.93	

DEQUEEN LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1930 thru 1982	6.2	13.1	20.3	24.5	24.6	30.0	29.3	30.0	11.2	5.3	4.0	6.3	204.8
WY 1982	24.1	17.0	4.8	17.5	26.1	19.0	22.1	60.5	20.8	2.0	0.6	0.7	215.2
Releases (1,000 AC. FT.)													
Avg 1979 thru 1982	13.1	12.3	15.1	15.6	19.8	24.5	29.9	29.2	36.9	7.3	8.5	1.2	213.4
WY 1982	26.6	18.4	4.7	11.4	30.4	20.3	21.6	33.5	45.3	10.5	5.8	0.4	228.9
Basin Rainfall (inches)													
Avg 1930 thru 1982	3.8	4.2	4.1	3.8	3.8	4.8	5.4	6.4	4.2	4.3	3.3	4.3	52.4
WY 1982	8.4	2.6	1.1	4.6	3.5	2.1	4.5	11.8	6.4	4.5	1.8	2.1	53.4
Deviation	+4.6	-1.6	-3.0	+0.8	-0.3	-2.7	-0.9	+5.4	+2.2	+0.2	-1.5	-2.2	+1.0
Pool Elevation													
End of Month	438.23	437.27	437.19	440.53	438.06	437.08	437.11	450.03	437.77	431.89	427.58	427.42	
Maximum	445.60	442.74	437.67	440.70	441.21	438.26	440.28	455.44	451.08	437.77	431.89	427.63	
Minimum	436.76	437.10	437.06	437.10	437.27	437.02	437.08	437.01	436.96	431.89	427.58	427.24	
Pool Content EOM (1,000 AC. FT.)	37.0	35.4	35.2	41.2	36.7	27.0	35.1	61.4	36.2	27.0	21.4	21.2	

GILLHAM LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1930 thru 1982	11.8	23.5	37.5	46.4	43.8	55.3	49.9	51.3	20.3	10.3	5.2	9.9	365.2
WY 1982	26.3	23.1	7.6	41.9	52.5	39.9	50.7	61.3	43.9	5.1	3.4	1.0	356.7
Releases (1,000 AC. FT.)													
Avg 1977 thru 1982	8.2	15.9	25.6	28.0	31.9	58.7	72.4	48.1	39.9	8.5	12.2	3.0	352.4
WY 1982	24.0	22.9	8.0	27.9	65.0	40.7	50.4	49.4	54.9	50.0	19.7	1.2	414.1
Basin Rainfall (inches)													
Avg 1930 thru 1982	4.0	4.4	4.1	4.0	4.0	5.1	5.4	6.4	4.7	4.4	3.3	4.6	54.4
WY 1982	8.2	2.9	0.6	5.7	3.8	2.7	5.6	9.1	7.4	3.2	2.4	1.3	52.9
Deviation	+4.2	-1.5	-3.5	+1.7	-0.2	-2.4	+0.2	+2.7	+2.7	-1.2	-0.9	-3.3	-1.5
Pool Elevation													
End of Month	502.48	502.51	502.11	511.20	503.03	502.24	502.20	509.84	502.20	501.85	486.70	486.11	
Maximum	510.22	509.25	503.86	511.51	512.77	504.08	512.04	517.82	517.27	502.20	502.28	486.71	
Minimum	500.21	502.17	502.04	502.10	502.26	501.82	501.95	501.96	502.20	501.30	486.70	486.11	
Pool Content EOM (1,000 AC. FT.)	33.7	33.7	33.2	47.1	34.5	33.4	33.3	44.8	33.3	32.8	16.1	15.6	

DIERKS LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1930 thru 1982	4.1	9.3	15.1	19.9	17.8	22.1	19.7	21.4	7.5	4.0	1.2	3.3	145.4
WY 1982	4.0	3.4	1.2	15.2	15.2	10.2	18.5	10.5	16.9	0.9	0.4	0.3	96.7
Releases (1,000 AC. FT.)													
Avg 1977 thru 1982	3.7	5.5	9.0	10.1	12.7	18.9	19.6	17.3	14.4	7.0	2.7	0.8	121.7
WY 1982	3.2	3.5	1.0	8.2	23.2	10.0	16.8	8.2	17.2	2.4	1.1	1.0	95.8
Basin Rainfall (inches)													
Avg 1930 thru 1982	4.5	4.5	4.2	4.1	4.1	5.1	5.3	6.2	4.9	4.0	3.2	3.9	54.0
WY 1982	6.2	1.7	1.0	6.2	3.5	2.2	6.9	6.9	8.1	1.7	3.8	1.4	49.6
Deviation	+1.7	-2.8	-3.2	+2.1	-0.6	-2.9	+1.6	+0.7	+3.2	-2.3	+0.6	-2.5	-4.4
Pool Elevation													
End of Month	526.17	525.92	526.00	530.70	525.10	525.04	526.04	527.42	526.90	525.42	524.51	523.59	
Maximum	526.90	527.02	526.14	530.70	531.58	526.63	531.03	529.38	532.61	526.90	525.44	524.51	
Minimum	525.62	525.80	525.92	525.98	525.05	524.50	525.04	525.82	526.77	525.42	524.51	523.59	
Pool Content EOM (1,000 AC. FT.)	29.9	29.5	29.7	36.5	28.4	28.4	29.7	31.6	30.9	28.9	27.7	26.5	

MILLWOOD LAKE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1,000 AC. FT.)													
Avg 1929 thru 1982	113.6	238.6	361.0	441.7	491.1	573.3	608.0	663.8	298.1	116.3	71.1	98.9	4,075.5
WY 1982	180.3	166.1	116.6	240.2	592.2	404.8	330.7	691.9	849.2	95.9	115.6	39.8	3,823.3
Releases (1,000 AC. FT.)													
Avg 1976 thru 1982	105.5	149.6	211.9	281.3	339.2	442.2	537.5	438.8	466.7	152.2	74.2	64.6	3,263.7
WY 1982	155.4	174.1	231.3	222.8	582.4	403.8	320.8	465.5	876.3	252.6	112.0	34.3	3,831.3
Intervening Basin Rainfall (inches)													
Avg 1930 thru 1982	3.7	4.1	3.7	3.6	3.7	4.3	4.8	5.7	4.0	3.4	2.9	3.8	47.7
WY 1982	7.5	2.0	0.8	4.7	3.0	2.0	4.1	8.8	7.3	2.9	2.9	1.7	47.7
Deviation	+3.8	-2.1	-2.9	+1.1	-0.7	-2.3	-0.7	+3.1	+3.3	-0.5	0.0	-2.1	0.0
Pool Elevation													
End of Month	259.84	259.35	259.18	259.58	259.74	259.42	259.42	265.36	264.34	259.46	259.22	259.06	
Maximum	260.95	261.53	259.39	259.79	259.83	259.87	260.09	265.36	269.00	264.34	259.57	259.42	
Minimum	259.21	259.24	259.04	259.18	259.16	258.83	259.03	258.98	264.34	259.20	259.09	259.04	
Pool Content EOM (1,000 AC. FT.)	224.3	209.6	204.5	216.5	221.3	211.7	211.7	424.4	382.8	212.9	205.7	201.0	

RED RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
WRIGHT PATMAN LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1957 THRU 1982	77	165	220	165	229	257	286	438	195	66	19	38	2155
FY 1982	429	288	10	32	108	143	92	897	451	149	34	0	2633
RELEASES (1000 AC,FT.)													
AVG 1957 THRU 1982	109	152	191	205	216	234	200	274	252	166	52	46	2099
FY 1982	232	546	32	11	100	99	25	252	602	504	63	8	2476
RAINFALL (INCHES)													
AVG 1957 THRU 1977	3.66	3.29	3.65	2.47	3.06	3.93	4.87	4.44	4.25	3.40	2.67	4.66	44.57
FY 1982	12.02	2.19	0.33	2.68	2.23	1.78	3.18	10.83	7.08	3.00	2.96	0.88	49.18
DEVIATION	8.34	-1.10	-3.32	0.21	-0.83	-2.15	-1.69	6.39	2.83	-0.40	0.31	-3.98	4.61
POOL ELEVATION													
END OF MONTH	230.39	221.64	220.64	221.24	221.32	222.76	224.85	239.37	236.14	227.17	225.67	224.74	
MAXIMUM	230.39	230.90	220.85	221.28	222.72	224.65	224.85	239.37	239.58	236.14	227.52	225.67	
MINIMUM	224.61	221.84	220.64	220.63	220.68	221.32	222.67	224.85	235.93	227.01	225.67	224.74	
POOL CONTENT EOM (1000 AC.FT.)	455	186	159	172	174	206	264	892	713	336	288	261	

RED RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
LAKE O THE PINES													
INFLOWS (1000 AC.FT.)													
AVG 1958 THRU 1982	10	25	45	53	56	75	78	64	31	10	5	13	465
FY 1982	37	19	6	20	35	33	37	92	54	17	1	0	351
RELEASES (1000 AC,FT.)													
AVG 1958 THRU 1982	10	15	41	49	54	66	58	58	35	15	11	13	427
FY 1982	33	17	0	15	37	29	19	43	59	23	2	5	282
RAINFALL (INCHES)													
AVG 1957 THRU 1977	3.67	3.53	3.69	2.59	3.16	3.73	4.90	4.01	3.73	2.79	2.33	3.93	41.46
FY 1982	9.46	2.25	0.36	2.69	2.52	1.61	3.42	5.82	5.42	2.85	1.19	0.77	38.36
DEVIATION	6.39	-1.28	-3.31	0.10	-0.64	-2.12	-1.48	1.81	1.69	0.06	-1.14	-3.16	-3.08
POOL ELEVATION													
END OF MONTH	226.70	226.70	226.90	229.02	226.82	228.81	229.50	231.60	230.90	230.20	229.77	226.87	
MAXIMUM	229.27	226.93	229.05	229.27	229.22	229.20	229.50	231.71	231.60	230.90	230.24	229.77	
MINIMUM	226.52	226.46	226.70	226.54	226.55	226.81	226.90	229.50	230.77	229.96	229.77	226.87	
POOL CONTENT EOM (1000 AC.FT.)	259	259	262	265	261	261	274	316	302	288	279	262	

NECHES RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
SAM RAYBURN RESERVOIR													
INFLOWS (1000 AC.FT.)													
AVG 1908 THRU 1982	40	86	172	256	258	282	289	313	136	58	34	32	1956
FY 1982	74	70	25	71	123	148	641	347	96	60	7	0	1662
RELEASES (1000 AC.FT.)													
AVG 1965 THRU 1982	52	42	62	94	114	143	146	209	190	147	143	92	1434
FY 1982	77	22	50	61	27	20	7	123	108	119	122	119	855
RAINFALL (INCHES)													
AVG 1931 THRU 1960	3.15	4.67	5.02	4.65	4.18	3.69	4.64	5.22	3.55	3.72	2.93	2.87	48.29
FY 1982	5.48	2.69	0.99	3.15	2.53	2.96	7.05	4.64	6.02	1.98	1.29	2.13	40.91
DEVIATION	2.33	-1.98	-4.03	-1.50	-1.65	-0.73	2.41	-0.58	2.47	-1.74	-1.64	-0.74	-7.38
POOL ELEVATION													
END OF MONTH	155.52	155.86	155.42	155.37	156.25	157.32	163.17	164.76	164.22	163.22	161.71	160.08	
MAXIMUM	155.86	155.96	155.93	155.57	156.28	157.32	163.17	165.11	164.81	164.35	163.22	161.71	
MINIMUM	155.24	155.52	155.34	154.79	155.35	156.18	157.32	163.17	163.80	163.14	161.71	160.08	
POOL CONTENT EOM (1000 AC.FT.)	1988	2019	1979	1974	2055	2155	2762	2940	5708	2765	2600	2429	

40

NECHES RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
B.A. STEINHAGEN LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1908 THRU 1982	74	151	284	438	439	495	514	607	290	141	81	67	3581
FY 1982	149	86	82	115	118	113	351	526	202	205	146	128	2221
RELEASES (1000 AC.FT.)													
AVG 1951 THRU 1982	96	130	234	313	338	376	408	601	294	178	122	108	3198
FY 1982	117	99	98	101	93	101	361	525	201	184	163	166	2209
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.92	4.25	4.71	4.10	3.59	3.92	4.60	5.00	3.43	3.27	2.81	2.85	45.45
FY 1982	6.15	2.72	0.98	2.43	2.77	2.90	5.70	4.87	5.33	1.45	1.13	1.16	37.59
DEVIATION	3.23	-1.53	-3.73	-1.67	-0.82	-1.02	1.10	-0.13	1.90	-1.82	-1.68	-1.69	-7.86
POOL ELEVATION													
END OF MONTH	82.10	80.74	78.94	80.31	82.36	83.05	81.99	81.78	81.43	82.65	80.79	75.76	
MAXIMUM	83.56	82.16	80.75	82.36	83.05	83.05	83.73	84.21	81.94	83.40	82.65	81.94	
MINIMUM	77.90	80.53	77.94	78.94	80.29	81.60	81.64	80.30	79.10	80.80	79.14	75.76	
POOL CONTENT EOM (1000 AC.FT.)	83	67	50	62	86	95	81	79	75	90	67	27	

TRINITY RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
BENBROOK LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1924 THRU 1982	2	3	2	3	6	7	9	14	6	2	1	1	56
FY 1982	36	42	3	3	6	8	4	45	34	16	1	0	198
RELEASES (1000 AC,FT.)													
AVG 1952 THRU 1982	1	4	2	2	4	5	5	10	11	2	2	1	49
FY 1982	3	55	2	2	3	10	4	0	69	20	0	0	168
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.83	2.22	2.30	2.06	2.06	2.36	3.79	4.75	3.28	2.16	2.10	2.44	32.35
FY 1982	11.20	2.27	0.19	2.27	1.83	2.19	1.95	7.68	6.83	4.80	0.92	0.94	43.27
DEVIATION	8.37	0.05	-2.11	0.21	-0.23	0.03	-1.84	2.93	3.55	2.64	-1.18	-1.50	10.92
POOL ELEVATION													
END OF MONTH	697.70	694.16	694.24	694.33	695.14	694.40	694.25	704.07	695.61	694.13	693.64	693.03	
MAXIMUM	697.70	703.71	694.35	694.33	695.14	695.14	694.63	704.07	704.55	696.26	694.16	693.64	
MINIMUM	688.93	694.07	694.16	694.05	694.33	693.96	694.02	694.25	695.81	694.03	693.64	693.03	
POOL CONTENT EOM (1000 AC.FT.)	103	89	89	90	93	90	89	133	95	89	87	85	

TRINITY RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
LEWISVILLE LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1924 THRU 1982	41	30	26	24	42	57	74	99	52	19	11	29	504
FY 1982	975	206	19	51	120	45	27	814	178	64	20	6	2525
RELEASES (1000 AC,FT.)													
AVG 1954 THRU 1982	30	45	44	27	25	33	33	71	77	41	31	22	479
FY 1982	240	414	293	161	139	46	25	165	232	253	267	80	2317
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.96	2.33	2.53	2.14	2.66	2.53	4.08	5.05	3.88	2.57	2.43	2.88	36.04
FY 1982	19.07	3.76	0.22	3.48	2.30	1.82	2.32	17.18	6.13	3.37	1.46	0.60	61.71
DEVIATION	16.11	1.43	-2.31	1.34	-0.36	-0.71	-1.76	12.13	2.25	0.80	-0.97	-2.28	25.67
POOL ELEVATION													
END OF MONTH	535.43	529.97	521.40	517.12	516.14	515.67	515.38	534.90	533.14	527.46	518.57	514.99	
MAXIMUM	535.61	536.48	529.97	521.40	519.27	516.14	515.95	535.26	534.90	533.14	527.46	518.57	
MINIMUM	512.06	529.97	521.37	515.70	515.79	514.97	515.34	515.18	532.62	527.46	518.57	514.99	
POOL CONTENT EOM (1000 AC.FT.)	1123	904	623	509	485	473	466	1100	1027	814	545	457	

TRINITY RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
GRAPEVINE LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1924 THRU 1982	11	6	7	9	13	16	24	30	15	54	2	6	193
FY 1982	31?	5?	12	19	2?	15	11	219	69	31	6	0	?83
RELEASES (1000 AC,FT.)													
AVG 1952 THRU 1982	4	8	12	9	6	6	10	12	15	13	11	5	111
FY 1982	4	122	114	104	45	16	13	3	82	101	112	5	?21
RAINFALL (INCHES)													
AVG 1931 THRU 1960	3.13	2.19	2.24	1.90	2.26	2.26	3.89	4.46	3.28	2.56	2.48	2.?8	33.43
FY 1982	18.44	3.30	0.23	2.44	1.81	1.?4	2.59	10.9?	5.?4	3.?8	1.21	0.86	53.11
DEVIATION	15.31	1.11	-2.01	0.54	-0.45	-0.52	-1.30	6.51	2.46	1.22	-1.2?	-1.92	19.66
POOL ELEVATION													
END OF MONTH	562.96	557.84	548.34	538.56	536.08	535.69	535.18	557.43	555.88	546.69	535.84	534.64	
MAXIMUM	562.96	563.50	557.81	548.34	538.62	536.12	535.?8	557.43	558.29	555.88	548.69	535.84	
MINIMUM	531.00	557.84	546.34	538.03	535.0?	535.69	535.01	535.18	555.40	546.69	535.84	534.64	
POOL CONTENT EOM													
(1000 AC.FT.)	464	399	295	208	189	186	182	394	3?6	299	18?	1?8	

TRINITY RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
LAVON LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1924 THRU 1982	14	19	23	25	35	37	53	69	3?	13	3	12	340
FY 1982	247	113	10	51	73	31	22	410	76	20	13	1	106?
RELEASES (1000 AC,FT.)													
AVG 1953 THRU 1982	13	14	26	20	15	21	15	58	3?	14	?	4	244
FY 1982	13	81	123	98	6?	3?	0	14?	116	120	59	0	861
RAINFALL (INCHES)													
AVG 1931 THRU 1960	3.28	2.8?	2.99	2.4?	2.82	3.3?	4.5?	5.24	3.99	2.86	2.?1	2.6?	39.84
FY 1982	16.?2	4.54	0.24	3.?5	2.2?	1.46	2.28	16.?0	6.02	2.91	2.30	0.83	60.04
DEVIATION	13.44	1.6?	-2.?5	1.28	-0.55	-1.89	-2.29	11.46	2.03	0.05	-0.41	-1.84	20.20
POOL ELEVATION													
END OF MONTH	499.65	500.40	495.55	493.05	492.92	492.04	492.40	502.18	499.98	494.95	491.66	490.?2	
MAXIMUM	499.65	503.00	500.40	495.55	493.56	492.95	492.00	503.02	502.18	499.98	494.95	491.68	
MINIMUM	490.05	499.65	495.55	492.33	492.13	491.96	492.51	492.35	499.?0	494.95	491.60	490.?2	
POOL CONTENT EOM													
(1000 AC.FT.)	640	660	53?	47?	47?	45?	465	?10	649	523	450	430	

TRINITY RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
NAVARRO MILLS LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1906 THRU 1982	5	6	8	10	10	12	19	29	14	4	1	3	121
FY 1982	10	2	0	2	2	10	7	22	12	1	0	0	68
RELEASES (1000 AC,FT.)													
AVG 1963 THRU 1982	2	7	6	4	6	7	9	16	22	6	0	2	89
FY 1982	0	0	0	0	0	4	9	3	16	9	0	0	41
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.64	2.60	2.61	2.62	2.80	2.67	4.36	4.98	3.50	1.82	1.60	2.64	34.84
FY 1982	6.94	1.42	0.23	1.84	1.30	2.64	2.93	7.14	4.87	0.78	1.21	0.04	31.34
DEVIATION	4.30	-1.18	-2.38	-0.78	-1.50	-0.03	-1.43	2.16	1.37	-1.04	-0.39	-2.60	-3.50
POOL ELEVATION													
END OF MONTH	424.62	424.70	424.51	424.63	424.82	425.70	424.90	427.83	426.57	424.26	423.51	422.72	
MAXIMUM	424.66	424.86	424.77	424.69	424.82	425.98	425.70	427.84	427.84	426.57	424.26	423.51	
MINIMUM	422.92	424.49	424.51	424.40	424.59	424.80	424.51	424.67	424.50	424.26	423.51	422.72	
POOL CONTENT EOM (1000 AC.FT.)	58	58	57	58	59	63	59	75	68	56	52	48	

TRINITY RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
RAINBELT LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1938 THRU 1982	3	3	4	4	6	6	11	14	7	2	1	2	63
FY 1982	3	2	0	1	2	3	3	14	3	1	0	0	32
RELEASES (1000 AC,FT.)													
AVG 1965 THRU 1982	1	5	3	3	4	6	6	12	11	2	0	1	54
FY 1982	0	0	0	0	1	3	1	2	11	1	0	0	19
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.90	2.73	2.94	2.53	2.81	2.73	4.11	4.81	3.09	1.98	2.16	2.74	35.54
FY 1982	6.49	1.51	0.32	1.60	1.95	2.21	2.41	7.36	4.36	0.65	0.92	0.86	31.04
DEVIATION	3.59	-1.22	-2.62	-0.93	-0.86	-0.52	-1.70	2.55	1.27	-1.33	-1.24	-1.88	-4.49
POOL ELEVATION													
END OF MONTH	421.22	421.38	421.23	421.34	421.55	421.01	421.16	424.05	421.35	420.66	420.03	419.35	
MAXIMUM	421.25	421.38	421.37	421.40	421.69	421.55	421.31	424.05	424.05	421.35	420.66	420.03	
MINIMUM	420.60	421.19	421.22	421.13	421.34	421.00	421.00	421.16	420.93	420.66	420.03	419.35	
POOL CONTENT EOM (1000 AC.FT.)	53	54	53	54	54	52	53	64	54	51	49	47	

SAN JACINTO BASIN

BARKER RESERVOIR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1000 Ac.Ft.)													
Aug. 1945 thru 1982	5.5	5.6	6.0	9.7	7.4	3.6	5.4	8.0	10.2	7.4	3.7	7.5	80.0
FY 1982	7.8	9.6	5.6	1.9	2.8	2.6	2.7	18.3	1.1	3.7	2.4	0.9	59.4
Releases (1000 Ac.Ft.)													
Aug. 1964 thru 1982	7.2	6.5	5.1	8.2	8.3	4.7	4.6	9.5	9.5	7.3	3.4	9.0	83.3
FY 1982	8.1	7.6	7.6	1.9	2.3	2.9	2.7	18.0	1.1	3.7	2.4	0.9	59.2
Rainfall (Inches)													
Aug. 1945 thru 1982	3.60	3.34	3.27	3.09	2.94	3.17	3.32	4.48	3.78	3.10	3.73	4.15	41.97
FY 1982	3.59	4.96	1.16	1.75	2.26	1.72	2.53	7.84	0.46	0.95	1.45	0.61	29.28
Pool Elevation													
End of Month	81.07	84.23	74.21	75.62	82.64	74.45	74.03	75.99	73.96	75.40	73.85	74.10	
Maximum	81.20	85.09	85.39	76.76	82.73	82.65	78.20	89.10	74.36	75.77	76.00	74.31	
Minimum	73.89	73.68	73.80	73.78	73.81	73.78	73.74	73.83	73.89	73.86	73.75	73.71	
Pool Content E.O.M. (1000 Ac.Ft.)	0.1	1.6	0	0	0.5	0	0	0	0	0	0	0	
ADDICKS RESERVOIR													
Inflows (1000 Ac.Ft.)													
Aug. 1948 thru 1982	6.1	5.5	6.2	6.4	6.9	3.1	5.8	7.9	7.2	5.3	5.1	6.5	72.0
FY 1982	5.0	9.7	4.9	2.8	3.2	1.5	1.8	21.1	1.0	3.4	1.7	0.9	57.0
Releases (1000 Ac.Ft.)													
Aug. 1964 thru 1982	8.1	6.7	5.1	7.4	7.2	3.4	4.8	9.7	7.3	5.6	3.5	7.9	76.7
FY 1982	4.6	6.5	8.5	2.8	3.2	1.5	1.8	21.0	1.1	3.4	1.7	0.9	57.0
Rainfall (Inches)													
Aug. 1948 thru 1982	3.86	3.31	3.36	3.03	3.13	2.12	3.47	4.22	3.66	3.12	3.29	4.37	40.94
FY 1982	5.03	3.36	1.39	2.67	2.03	1.83	3.19	7.91	0.59	1.01	1.56	0.59	31.16
Pool Elevation													
End of Month	80.65	88.21	71.83	73.75	72.49	71.80	71.68	79.40	71.80	74.08	71.70	72.17	
Maximum	80.65	88.21	89.05	77.06	80.23	74.79	77.04	93.45	78.15	74.13	77.42	72.22	
Minimum	71.74	71.65	71.64	71.68	71.71	71.58	71.56	71.63	71.64	71.63	71.70	71.65	
Pool Content E.O.M. (1000 Ac.Ft.)	0.3	3.4	0	0	0	0	0	0.2	0	0	0	0	

BRAZOS RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
WHITNEY LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1699 THRU 1982	120	66	67	55	60	68	135	279	170	99	72	108	1301
FY 1982	904	137	23	24	46	41	22	711	799	317	22	4	3110
RELEASES (1000 AC,FT.)													
AVG 1951 THRU 1982	99	57	39	51	43	55	61	216	180	83	53	71	1008
FY 1982	734	252	41	56	49	50	23	564	660	481	46	29	2989
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.68	1.94	2.16	1.96	2.25	2.00	3.49	4.76	2.97	2.07	1.81	2.76	31.11
FY 1982	8.14	2.12	0.48	1.79	2.15	2.74	2.50	8.61	5.54	2.69	0.72	0.43	38.11
DEVIATION	5.46	0.18	-1.68	-0.17	-0.10	0.66	-0.99	3.85	2.57	0.62	-1.09	-2.33	7.00
POOL ELEVATION													
END OF MONTH	538.18	533.31	532.16	530.76	530.43	529.75	529.39	535.27	540.01	533.04	531.21	529.51	
MAXIMUM	547.84	539.69	533.11	532.16	530.83	530.42	530.00	536.33	540.05	540.71	533.06	531.21	
MINIMUM	526.51	532.97	532.07	530.55	530.25	529.56	529.35	529.16	533.65	533.02	531.21	529.51	
POOL CONTENT EOM (1000 AC.FT.)	763	635	612	576	569	554	546	682	808	628	586	549	

BRAZOS RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
WACO LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1907 THRU 1982	25	16	20	18	24	26	47	70	31	14	8	17	316
FY 1982	13	7	3	4	6	20	10	55	24	8	0	0	150
RELEASES (1000 AC,FT.)													
AVG 1965 THRU 1982	9	14	13	16	20	29	36	75	30	16	3	5	266
FY 1982	0	0	0	0	0	16	6	49	10	8	0	0	91
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.56	2.19	2.50	2.26	2.39	2.09	3.83	4.83	2.00	2.14	1.67	3.00	32.36
FY 1982	7.10	1.32	0.38	1.46	2.06	2.75	2.67	7.35	5.61	2.23	0.45	0.81	33.61
DEVIATION	4.52	-0.87	-2.12	-0.80	-0.31	0.66	-1.16	2.52	3.13	0.09	-1.22	-2.19	1.25
POOL ELEVATION													
END OF MONTH	454.67	455.09	455.06	455.15	455.46	455.49	455.22	455.26	456.25	455.14	454.00	452.86	
MAXIMUM	454.67	455.09	455.22	455.16	455.52	457.02	455.76	456.82	456.50	456.25	455.14	454.00	
MINIMUM	453.44	454.67	455.04	454.97	455.16	455.06	455.07	455.00	454.95	455.14	454.00	452.86	
POOL CONTENT EOM (1000 AC.FT.)	147	150	150	150	153	153	151	151	158	150	142	134	

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
PROCTOR LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1922 THRU 1982	3	2	1	3	2	5	5	12	5	2	1	3	44
FY 1982	35	2	0	1	1	2	2	24	49	11	1	0	128
RELEASES (1000 AC,FT.)													
AVG 1963 THRU 1982	3	3	2	3	6	4	9	11	9	8	4	2	64
FY 1982	1	4	0	0	0	0	0	16	14	34	10	2	81
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.71	1.66	1.76	1.65	1.69	1.55	3.06	4.68	2.75	2.08	1.65	2.73	27.97
FY 1982	7.88	1.17	0.40	1.26	1.88	1.93	1.95	6.25	6.50	1.99	0.64	0.60	32.45
DEVIATION	5.17	-0.49	-1.36	-0.39	0.19	0.38	-1.11	1.57	3.75	-0.09	-1.01	-2.13	4.48
POOL ELEVATION													
END OF MONTH	1163.11	1162.44	1162.12	1162.10	1162.10	1162.15	1162.06	1163.28	1169.04	1164.25	1161.58	1160.34	
MAXIMUM	1163.15	1163.20	1162.44	1162.17	1162.14	1162.21	1162.17	1164.32	1169.09	1169.04	1164.25	1161.58	
MINIMUM	1154.25	1162.40	1162.11	1162.01	1161.98	1162.03	1161.96	1162.00	1162.09	1164.25	1161.58	1160.34	
POOL CONTENT EOM (1000 AC.FT.)	65	61	60	60	60	60	60	65	98	70	57	52	

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
BELTON LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1908 THRU 1982	31	21	31	31	36	37	65	103	49	24	14	26	468
FY 1982	18	8	2	3	6	20	22	70	37	37	12	0	235
RELEASES (1000 AC,FT.)													
AVG 1954 THRU 1982	25	23	20	26	26	37	34	61	66	46	14	9	387
FY 1982	9	2	2	1	1	9	22	67	16	36	4	2	171
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.61	2.11	2.28	2.10	2.21	1.96	3.56	4.66	2.89	2.07	1.69	2.92	31.06
FY 1982	5.91	1.21	0.47	1.15	1.73	2.69	2.86	4.89	5.21	1.84	0.80	0.26	29.02
DEVIATION	3.30	-0.90	-1.81	-0.95	-0.46	0.73	-0.70	0.23	2.32	-0.23	-0.89	-2.66	-2.04
POOL ELEVATION													
END OF MONTH	594.30	594.45	594.23	594.11	594.24	594.24	594.26	593.98	595.01	594.29	594.07	593.18	
MAXIMUM	594.82	594.45	594.45	594.23	594.24	594.37	594.88	595.59	595.05	595.01	594.40	594.07	
MINIMUM	593.87	594.29	594.21	594.05	594.02	594.21	594.05	593.94	593.97	594.01	594.07	593.18	
POOL CONTENT EOM (1000 AC.FT.)	446	448	449	443	445	451	445	442	455	446	443	432	

BRAZOS RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
STILLHOUSE HOLLOW LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1924 THRU 1982	14	10	12	15	22	23	26	46	21	10	5	11	215
FY 1982	14	9	3	3	3	7	10	29	14	4	1	0	97
RELEASES (1000 AC,FT.)													
AVG 1968 THRU 1982	8	7	9	13	13	16	21	35	25	23	3	6	179
FY 1982	12	8	0	3	1	7	9	26	5	7	0	0	78
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.76	2.16	2.33	2.02	2.13	1.84	3.35	4.42	2.99	1.98	1.92	3.11	31.03
FY 1982	5.09	1.19	0.36	0.97	1.57	2.20	3.30	4.56	4.20	1.03	0.81	0.53	25.81
DEVIATION	2.31	-0.97	-1.97	-1.05	-0.56	0.36	-0.05	0.14	1.21	-0.95	-1.11	-2.58	-5.22
POOL ELEVATION													
END OF MONTH	622.20	622.23	622.49	622.27	622.46	622.24	622.16	622.17	622.92	621.81	621.24	620.75	
MAXIMUM	623.36	622.80	622.49	622.51	622.49	622.53	622.75	623.60	623.05	622.92	621.80	621.25	
MINIMUM	621.99	622.14	622.23	622.00	622.27	622.23	622.03	622.02	622.00	621.80	621.13	620.75	
POOL CONTENT EOM (1000 AC.FT.)	237	237	239	237	239	237	237	237	242	234	231	228	

BRAZOS RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
GEORGETOWN LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1980 THRU 1982	4	2	1	1	1	1	2	14	27	3	1	9	66
FY 1982	12	5	2	1	1	1	2	11	5	1	0	0	41
RELEASES (1000 AC,FT.)													
AVG 1980 THRU 1982	3	2	1	0	0	0	1	4	13	16	1	9	50
FY 1982	10	7	2	1	1	0	1	11	3	2	0	0	38
RAINFALL (INCHES)													
AVG 1931 THRU 1960	1.75	3.12	1.10	1.08	2.32	3.37	3.29	5.71	0.00	0.00	0.00	0.00	21.74
FY 1982	6.17	0.89	0.29	0.90	1.22	1.30	3.81	4.62	4.24	0.58	2.25	1.63	27.90
DEVIATION	4.42	-2.23	-0.81	-0.18	-1.10	-2.07	0.52	-1.09	4.24	0.58	2.25	1.63	6.16
POOL ELEVATION													
END OF MONTH	792.67	791.07	791.13	791.36	791.12	791.22	791.51	791.14	792.22	790.90	790.45	789.94	
MAXIMUM	795.55	793.66	791.86	791.36	791.43	791.22	792.27	794.77	792.68	792.22	790.90	790.45	
MINIMUM	791.49	791.01	791.07	791.03	791.04	791.11	791.10	790.98	791.00	790.90	790.45	789.94	
POOL CONTENT EOM (1000 AC.FT.)	39	37	37	38	37	37	38	37	39	37	36	36	

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
GRANGER LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1960 THRU 1982	10	6	4	4	5	7	9	24	64	22	4	19	179
FY 1982	29	22	6	6	5	6	15	40	15	6	2	1	155
RELEASES (1000 AC.FT.)													
AVG 1960 THRU 1982	9	6	2	2	2	1	5	13	46	45	4	18	149
FY 1982	26	23	5	6	5	3	13	36	10	7	0	0	138
RAINFALL (INCHES)													
AVG 1941 THRU 1960	2.11	3.39	1.22	1.20	2.26	3.57	2.94	4.93	0.00	0.00	0.60	0.00	21.62
FY 1982	5.68	0.91	0.30	0.99	1.11	1.51	4.26	5.30	4.12	1.19	1.65	1.30	28.32
DEVIATION	3.57	-2.48	-0.92	-0.21	-1.15	-2.06	1.32	0.37	4.12	1.19	1.65	1.30	6.70
POOL ELEVATION													
END OF MONTH	504.75	504.38	504.45	504.20	504.08	504.38	504.44	504.36	505.12	504.19	503.81	503.43	
MAXIMUM	507.21	505.50	504.50	504.45	504.22	504.39	505.87	507.38	505.42	505.12	504.19	503.81	
MINIMUM	504.33	504.15	504.10	504.04	504.02	504.07	504.13	503.46	504.01	504.19	503.81	503.43	
POOL CONTENT EOM (1000 AC.FT.)	69	67	67	66	66	67	67	67	71	66	65	63	

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
SOMERVILLE LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1924 THRU 1982	13	14	17	22	23	19	29	38	22	12	3	10	222
FY 1982	21	19	1	2	4	5	15	81	1	1	1	0	151
RELEASES (1000 AC.FT.)													
AVG 1967 THRU 1982	11	12	14	9	17	16	22	33	33	21	5	5	198
FY 1982	0	30	0	0	0	0	6	44	35	0	0	0	115
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.66	3.10	3.15	2.89	2.67	2.44	3.71	3.95	3.43	2.35	2.45	3.09	36.09
FY 1982	7.06	1.83	0.57	1.14	1.13	2.38	3.88	6.60	3.75	0.73	1.06	2.66	32.79
DEVIATION	4.40	-1.27	-2.58	-1.75	-1.54	-0.06	0.17	2.65	0.32	-1.62	-1.39	-0.43	-3.30
POOL ELEVATION													
END OF MONTH	239.10	237.98	237.85	237.86	238.00	238.21	238.72	241.25	237.98	237.40	236.89	236.45	
MAXIMUM	239.10	240.04	238.02	237.87	238.04	238.21	239.03	242.85	241.25	237.97	237.40	236.89	
MINIMUM	237.39	237.94	237.80	237.77	237.85	237.96	238.15	237.87	237.97	237.40	236.89	236.45	
POOL CONTENT EOM (1000 AC.FT.)	173	160	158	159	160	163	168	200	160	151	148	143	

COLORADO RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
TWIN BUTTES LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1963 THRU 1982	4	2	2	2	2	2	3	5	2	1	4	5	34
FY 1982	16	4	3	4	4	4	3	5	5	3	0	0	51
RELEASES (1000 AC,FT.)													
AVG 1963 THRU 1982	2	2	2	2	2	2	4	6	4	6	4	2	38
FY 1982	2	1	1	1	0	1	3	1	3	8	8	4	33
RAINFALL (INCHES)													
AVG 1931 THRU 1960	1.81	0.76	0.91	0.89	0.83	0.83	1.74	2.89	1.83	1.74	1.45	2.37	18.05
FY 1982	6.80	0.03	0.03	0.96	1.03	0.56	0.83	4.59	3.82	1.26	0.93	0.07	20.91
DEVIATION	4.99	-0.73	-0.88	0.07	0.20	-0.27	-0.91	1.70	1.99	-0.48	-0.52	-2.30	2.86
POOL ELEVATION													
END OF MONTH	1926.21	1926.70	1926.98	1927.36	1927.86	1927.94	1927.53	1927.73	1927.48	1925.67	1923.25	1921.54	
MAXIMUM	1926.21	1926.70	1926.98	1927.36	1927.86	1927.95	1927.94	1927.79	1927.73	1927.48	1925.67	1923.17	
MINIMUM	1922.65	1926.21	1926.70	1926.98	1927.37	1927.84	1927.53	1927.48	1927.08	1925.67	1923.17	1921.51	
POOL CONTENT EOM													
(1000 AC.FT.)	91	93	94	96	99	99	97	98	97	88	73	66	

COLORADO RIVER BASIN

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
O.C.FISHER LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1915 THRU 1982	4	0	0	0	1	1	4	6	3	3	1	1	30
FY 1982	4	0	0	0	1	1	0	3	2	1	0	0	12
RELEASES (1000 AC,FT.)													
AVG 1953 THRU 1982	2	0	0	0	0	0	0	0	0	1	0	0	3
FY 1982	0	0	0	0	0	0	0	0	0	0	0	0	0
RAINFALL (INCHES)													
AVG 1931 THRU 1960	1.88	0.75	1.04	0.84	0.84	0.86	1.59	2.71	1.91	2.09	1.65	2.18	18.34
FY 1982	6.40	0.12	0.02	0.79	0.80	0.85	0.77	5.55	5.19	1.52	1.01	0.07	23.09
DEVIATION	4.52	-0.63	-1.02	-0.05	-0.04	-0.01	-0.82	2.84	3.28	-0.57	-0.64	-2.11	4.75
POOL ELEVATION													
END OF MONTH	1885.27	1885.00	1884.80	1884.73	1884.76	1884.82	1884.56	1885.48	1885.70	1885.56	1884.86	1884.15	
MAXIMUM	1885.36	1885.27	1885.00	1884.80	1884.78	1884.88	1884.82	1885.53	1885.70	1886.00	1885.56	1884.86	
MINIMUM	1883.72	1885.00	1884.80	1884.70	1884.67	1884.70	1884.55	1884.55	1885.28	1885.56	1884.86	1884.15	
POOL CONTENT EOM													
(1000 AC.FT.)	35	34	33	33	33	34	33	35	36	35	34	32	

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
HORLS CREEK LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1942 THRU 1982	0	0	0	0	0	0	1	1	0	0	0	0	2
FY 1982	0	0	0	0	0	0	0	0	2	0	0	0	2
RELEASES (1000 AC,FT.)													
AVG 1953 THRU 1982	0	0	0	0	0	0	0	0	0	0	0	0	0
FY 1982	0	0	0	0	0	0	0	0	0	0	0	0	0
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.49	1.31	1.44	1.56	1.29	1.25	2.90	4.49	2.73	2.38	1.94	3.04	26.82
FY 1982	5.75	0.16	0.03	1.23	1.26	0.79	1.19	4.53	8.34	0.66	0.44	0.74	25.12
DEVIATION	3.26	-1.15	-1.41	-0.33	-0.03	-0.46	-1.71	0.04	5.61	-1.72	-1.50	-2.30	-1.70
POOL ELEVATION													
END OF MONTH	1885.71	1885.29	1884.71	1884.19	1883.86	1883.36	1882.66	1882.54	1891.40	1890.77	1889.82	1889.00	
MAXIMUM	1885.97	1885.71	1885.29	1884.71	1884.19	1883.86	1883.36	1882.77	1891.40	1891.45	1890.73	1889.82	
MINIMUM	1885.21	1885.28	1884.71	1884.19	1883.83	1883.36	1882.66	1882.52	1882.23	1890.73	1889.82	1889.00	
POOL CONTENT EOM													
(1000 AC.FT.)	3	3	3	3	3	2	2	2	5	4	4	4	

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
MARSHALL FORD													
INFLOWS (1000 AC.FT.)													
AVG 1941 THRU 1982	127	63	52	76	81	85	125	237	165	97	86	108	1302
FY 1982	395	90	45	25	38	48	61	157	185	155	60	14	1273
RELEASES (1000 AC,FT.)													
AVG 1944 THRU 1982	69	65	50	48	55	69	98	175	173	130	118	80	1130
FY 1982	119	112	43	4	61	61	85	106	166	181	152	112	1202
RAINFALL (INCHES)													
AVG 1931 THRU 1960	2.39	1.46	1.42	1.13	1.18	1.27	2.46	3.27	2.50	2.02	2.03	2.76	23.89
FY 1982	6.47	0.74	0.11	0.79	1.46	1.08	2.07	5.00	4.22	0.91	1.45	1.68	25.98
DEVIATION	4.08	-0.72	-1.31	-0.34	0.28	-0.19	-0.39	1.73	1.72	-1.11	-0.58	-1.08	2.09
POOL ELEVATION													
END OF MONTH	681.50	680.16	680.10	680.06	679.67	678.74	677.14	679.49	680.02	677.89	671.97	665.40	
MAXIMUM	682.53	681.40	681.05	681.10	681.04	679.81	678.75	679.65	680.02	681.31	677.89	671.97	
MINIMUM	671.80	679.89	679.40	680.06	679.43	678.72	677.14	677.03	676.68	677.89	671.97	665.40	
POOL CONTENT EOM													
(1000 AC.FT.)	1181	1156	1155	1152	1147	1129	1100	1143	1151	1114	1010	905	

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
CANYON LAKE													
INFLOWS (1000 AC.FT.)													
AVG 1915 THRU 1982	31	16	17	20	21	23	31	40	30	22	18	27	296
FY 1982	92	26	19	17	13	15	14	54	24	10	8	6	298
RELEASES (1000 AC,FT.)													
AVG 1964 THRU 1982	17	17	12	14	16	19	21	26	30	22	27	17	240
FY 1982	36	42	39	17	13	14	13	31	24	13	6	5	253
RAINFALL (INCHES)													
AVG 1931 THRU 1960	3.05	1.67	2.18	2.07	2.20	2.00	3.00	4.03	2.98	2.40	2.07	4.02	31.67
FY 1982	6.71	0.74	0.23	0.87	1.39	0.69	2.02	5.58	2.29	0.80	1.63	1.21	24.16
DEVIATION	3.66	-0.93	-1.95	-1.20	-0.81	-1.31	-0.98	1.55	-0.69	-1.60	-0.44	-2.81	-7.51
POOL ELEVATION													
END OF MONTH	911.65	909.45	906.71	906.45	906.31	906.14	905.96	908.40	907.90	906.62	906.48	906.14	
MAXIMUM	912.38	911.64	909.45	906.71	906.50	906.34	906.16	909.22	908.41	907.90	906.87	906.46	
MINIMUM	904.91	909.45	906.71	906.37	906.29	906.12	905.84	905.90	907.74	906.62	906.48	906.14	
POOL CONTENT END OF MONTH (1000 AC.FT.)	404	386	363	361	360	359	358	377	373	364	362	359	

PLATORO DAM[1]

Inflows (1000 Ac-Ft)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
FY 1982	2.4	1.7	1.0	.8	.6	.9	4.3	13.4	38.0	21.5	6.6	9.7	100.9
Releases (1000 Ac-Ft)													
FY 1982	3.9	1.6	.9	.9	.8	.7	4.4	13.5	37.7	21.6	6.7	9.7	102.4
Rainfall (Inches)													
FY 1982	5.95	Rainfall data is not available during winter months.				.52	.23	2.89	5.46	4.73			
Pool Elevation(EOM)	9982.40	9982.50	9982.70	9982.70	9982.20	9982.70	9982.60	9982.40	9982.60	9982.50	9982.20	9982.40	
Maximum	9982.80	9982.50	9982.70	9982.90	9982.70	9982.40	9982.80	9982.70	9982.80	9982.60	9982.60	9983.00	9983.00
Minimum	9982.30	9982.30	9982.50	9982.70	9982.20	9982.70	9982.10	9982.30	9982.30	9982.30	9982.40	9982.40	9982.10
Pool Content(EOM)													
(1000 Ac-Ft)	19.7	19.8	19.9	19.9	19.6	19.9	19.8	19.7	19.8	19.7	19.7	19.7	

[1]*Data for compiling averages unavailable*

ABIQUIU DAM

Inflows (1000 Ac-Ft)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Avg 1962 thru 1982	9.2	14.7	18.1	6.4	6.4	14.8	45.4	92.3	47.4	22.1	22.5	14.6	312.0
FY 1982	9.1	5.1	7.7	5.1	5.5	20.6	77.1	169.2	78.8	22.8	17.1	21.5	439.6
Releases (1000 Ac-Ft)													
Avg 1963 thru 1982	10.1	24.1	23.4	8.5	5.9	13.8	36.1	60.8	54.3	31.0	22.8	14.2	304.9
FY 1982	9.0	5.0	7.6	5.0	4.9	20.4	74.9	123.0	125.0	21.1	18.7	21.4	435.9
Rainfall (Inches)													
Avg 1957 thru 1982	.88	.54	.35	.34	.27	.52	.48	.73	.61	1.67	1.92	1.16	9.32
FY 1982	.79	.24	.04	.55	.47	.24	.13	1.14	.18	3.06	1.46	2.06	10.36
Pool elevation(EOM)	6161.53	6161.39	6161.33	6161.29	6161.51	6161.28	6162.23	6184.72	6160.59	6161.08	6159.57	6159.29	
Maximum	6161.93	6161.62	6161.79	6161.45	6161.51	6162.21	6163.68	6184.72	6185.79	6161.20	6161.24	6160.62	6185.79
Minimum	6161.53	6161.32	6161.33	6161.27	6161.29	6161.08	6160.93	6163.72	6160.59	6159.60	6159.57	6159.29	6159.29
Pool content (EOM)													
(1000 Ac-Ft)	35.6	35.4	35.3	35.3	35.6	35.3	36.7	81.9	34.2	35.0	32.7	32.3	

COCHITI LAKE

Inflows (1000 Ac-Ft)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Avg 1910 thru 1982	48.2	52.4	47.9	124.2	250.1	186.6	86.2	72.9	198.4	83.3	55.2	43.5	1248.9
FY 1982	34.3	43.6	36.8	36.1	37.3	63.6	119.3	254.4	248.5	91.6	69.4	94.9	1248.9
Releases (1000 Ac-Ft)													
Avg 1975 thru 1982	30.2	50.1	52.4	39.0	36.8	58.4	98.3	204.7	191.2	116.9	51.7	44.2	973.9
FY 1982	33.9	43.3	36.5	36.0	37.0	63.0	118.3	250.8	249.0	88.6	70.8	94.4	1121.6
Rainfall (Inches)													
Avg 1967 thru 1982	.91	.60	.52	.58	.32	.53	.48	.94	.74	1.85	2.32	1.52	11.31
FY 1982	.89	.36	.0	.49	1.00	.78	.0	.94	.04	1.19	.95	2.50	9.14
Pool Elevation(EOM)	5321.44	5321.43	5321.47	5321.42	5321.45	5321.59	5321.83	5324.20	5322.99	5324.67	5322.79	5322.84	
Maximum	5321.70	5321.64	5321.77	5321.77	5321.64	5321.81	5321.94	5324.20	5328.70	5325.60	5324.34	5323.78	5328.70
Minimum	5321.32	5321.40	5321.29	5321.37	5321.36	5321.37	5320.87	5321.27	5321.26	5322.63	5322.70	5322.38	5320.87
Pool Content (EOM)													
(1000 Ac-Ft.)	40.5	40.5	40.5	40.5	40.5	40.7	40.9	43.5	42.1	44.0	41.9	42.0	

GALISTEO DAM

Inflows (1000 Ac-Ft.)*													
Avg 1971 thru 1982													
FY 1982													
Releases (1000 Ac-Ft.)													
Avg 1971 thru 1982	.43	.06	.06	.08	.10	.11	.16	.20	.21	1.48	1.09	.85	4.83
FY 1982	1.81	.01	.05	.13	.09	.12	.02	.0	.01	.38	1.10	2.64	6.38
Rainfall (Inches)													
Avg 1958 thru 1982	.75	.47	.22	.48	.38	.36	.50	.99	.26	1.35	1.38	1.23	8.37
FY 1982	.77	.0	.0	.90	.67	.32	.03	.37	.0	1.82	1.70	1.96	8.54
Pool Elevation (EOM) **													
Maximum	No End of Month storage during year												
Minimum													
Pool Content													
(1000 Ac-Ft)	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

* Inflow = Outflow

** Invert Elevation

JEMEZ CANYON DAM

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Inflows (1000 Ac-Ft)													
Avg 1953 thru 1982	1.8	1.8	1.4	1.5	1.6	3.4	12.3	10.5	2.3	1.1	3.0	1.1	42.0
FY 1982	1.9	.8	1.1	1.3	1.4	3.3	13.1	16.0	1.9	.4	4.6	4.9	50.8
Releases (1000 Ac-Ft)													
Avg 1954 thru 1982	1.7	1.8	1.7	1.5	2.4	3.3	9.5	11.5	5.5	1.3	2.9	1.0	44.1
FY 1982	1.8	.7	1.2	1.3	1.2	3.1	12.5	16.3	1.3	0	3.9	5.4	48.9
Rainfall (Inches)													
Avg 1953 thru 1982	.94	.41	.39	.38	.36	.37	.34	.77	.42	1.29	1.58	1.11	8.40
FY 1982	1.04	.30	.00	.31	.29	.52	.03	.82	.05	1.91	2.33	4.59	12.19
Pool Elevation(EOM)	5159.97	5160.18	5159.50	5158.97	5159.23	5159.39	5160.73	5158.67	5159.57	5160.17	5162.03	5160.02	
Maximum	5163.46	5160.18	5160.14	5159.94	5159.69	5160.05	5162.60	5163.70	5160.23	5160.17	5163.62	5164.42	5164.42
Minumum	5159.88	5159.76	5159.50	5158.90	5158.90	5158.86	5158.54	5158.35	5157.96	5158.65	5159.90	5159.70	5157.96
Pool Content (EOM) (1000 Ac-Ft)	2.0	2.0	1.8	1.7	1.8	1.8	2.2	1.6	1.9	2.0	2.6	2.0	

SANTA ROSA

Inflows (1000 Ac-Ft)													
Avg 1981 thru 1982	1.7	.7	.8	.7	.6	.9	1.0	4.3	6.6	10.0	31.9	10.3	69.3
FY 1982	2.2	.4	.4	.5	.6	1.1	1.4	7.8	12.8	12.5	24.3	11.7	75.7
Releases (1000 Ac-Ft)													
Avg 1981 thru 1982	.5	.5	.5	.4	.3	.3	.2	1.8	7.7	18.5	5.2	14.0	50.0
FY 1982	.2	.1	.1	.1	.1	.1	.1	.1	14.6	29.6	.1	27.8	73.0
Rainfall (Inches)													
Avg 1981 thru 1982	.64	.52	0	.22	.17	.43	.23	.69	1.20	2.25	6.16	1.38	13.87
FY 1982	1.28	.55	0	.25	.26	.11	.00	.85	1.55	2.06	3.64	1.68	12.23
Pool elevation(EOM)	4721.71	4721.54	4721.48	4721.45	4721.41	4721.46	4721.62	4724.94	4723.32	4711.91	4725.79	4716.66	
Maximum	4721.86	4721.72	4721.54	4721.48	4721.44	4721.57	4724.62	4724.94	4729.48	4722.20	4725.79	4724.94	4729.48
Minimum	4720.96	4721.54	4721.48	4721.43	4721.40	4721.40	4721.29	4721.60	4723.32	4705.97	4712.73	4711.02	4705.97
Pool Content (EOM) (1000 AC-FT)	37.9	37.6	37.5	37.4	37.3	37.4	37.7	44.3	41.0	22.8	46.1	29.3	

Sumner Lake No data available

TWO RIVERS DAM

Inflows (1000 Ac-Ft)	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Avg 1964 thru 1982	.48	.53	.29	.35	.23	.18	.48	.55	.60	.52	1.09	1.63	6.69
FY 1982	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.43	.43
Releases (1000 Ac-Ft)*													
Avg 1964 thru 1982													
FY 1982													
Rainfall (Inches)													
Avg 1975 thru 1982	.91	.27	.18	.21	.38	.27	.39	.72	1.39	2.06	2.97	2.29	11.96
FY 1982	.04	.00	.00	.00	.00	.00	.00	.00	.42	2.57	1.21	1.54	6.78
Pool Elevation (EOM)													
Maximum	No End of Month storage during year												
Minimum													
Pool content (EOM)													
(1000 Ac-Ft)	0	0	0	0	0	0	0	0	0	0	0	0	

*Inflow+Outflow

SECTION VIII - MINUTES OF MEETINGS OF BASIN INTERESTS GROUPS AND ANNUAL RCC MEETING

1. Arkansas River Basin Coordinating Committee
2. Trinity River Basin Water Management Interests Group
3. RCC Meeting

MINUTES

Arkansas River Basin
Coordinating Committee Meeting
30 April 1982

1. Introduction. Mr. R. L. James, Acting Chairman of the Committee, opened the meeting and introduced those in attendance. A list of attendees is furnished on inclosure 1.

2. Annual Report. Mr. Charles Sullivan, Corps of Engineers, Southwestern Division (SWD), stated that the Arkansas River Basin Coordinating Committee Annual Report has been discontinued. The cost of producing this report has become quite significant; so, earlier this year the committee members were asked to express their need for this report. The general response from the membership was that the report could be discontinued. As an alternative to the committee report the Corps would be willing to furnish copies of the Reservoir Control Center Annual Report. This report contains most of the material, although in lesser detail, which was in the committee report. Any member who would like to have copies of the Reservoir Control Center Annual Report should notify Mr. Sullivan before October so a sufficient number of copies will be printed.

3. Review of 1981 Operations.

a. Above Fort Smith. Mr. Ross R. Copley, Corps of Engineers, Tulsa District (TD), presented a review of the operations in the Tulsa District portion of the basin. The annual rainfall was below normal at most lakes in the basin, and the runoff was only about 30 percent of normal for the year. Council Grove, Fall River and Marion Lakes in Kansas and Hulah and Heyburn Lakes in Oklahoma experienced record low pool levels for the period they have been in operation. Flood control operations during the year were very minor. No significant problems were experienced on the navigation system during the year.

(1) The power production at the six hydroplants was 730 GWH compared to an average of 1175 GWH for the years 1977 through 1981. Although low runoff was the main cause for the reduction, a portion of the reduction was due to the Webbers Falls plant being out of service.

(2) Total visitation at the projects in 1981 was 37,354,000 representing an increase of 594,000 over 1980. During 1981 a total of 122,600 acre-feet of water was supplied from the storage space in the lakes. This amounts to about a 4-percent increase from 1980.

(3) During the past year impoundment began on 31 March at Big Hill Lake and on 29 June at El Dorado Lake. This brings the total Corps of Engineers projects in operation by the Tulsa District in the Arkansas Basin to 27. Reservoirs under construction include Copan, scheduled for closure in October 1982, Skiatook (1984) and Arcadia (1987).

(4) Agreements with the Kansas Board of Agriculture to pass natural flows through John Redmond and Council Grove Lakes for downstream water rights were signed in 1981.

(5) During the past year considerable progress was made toward the installation of the automated Water Control System. Last September a Harris 500 computer was installed. We currently have installed 26 Data Collection Platforms (DCP's) in the field. This platform collects data such as rainfall, lake levels, and river stages and transmits the data via satellite to the district office. The installation of additional DCP's is planned in the future.

b. Below Fort Smith.

(1) Mr. James A. Proctor, Corps of Engineers, Little Rock District (LRD), presented a review of the operations in the Little Rock District. The year 1981 was a relatively low flow year along the LRD portion of the basin. For the second year in a row, annual runoff volumes were less than half of the long-term averages. Mainstem flows were about 45 percent of the annual average with similar conditions on the two tributary flood control lakes, Blue Mountain and Nimrod. The flow rates were fairly uniform with the maximum flow reaching only 73,700 cfs at Little Rock.

(2) The annual average flow rate was only 18,500 cfs at Little Rock, or about 43 percent of the long-term average. On several occasions in the summer and fall months, the flows receded to only 1,000 cfs. At these rates, the flows are barely adequate to maintain navigation pools on the lower portion of the river.

(3) The reduced runoff produced only 13 minor rises throughout the year. Flow conditions in 1981 were quite good for navigation traffic. The absences of large rises not only contributed to more uniform flow patterns but also lessened the mainstem shoaling problems. The most serious impact to navigation was tow restrictions because of low stages in the White River Entrance Channel during the first 2 months of the year. The entrance channel has repeatedly been a problem to navigation over the years and the district is currently looking into possible solutions to the problem.

(4) Annual tonnage movements on the navigation system continued their increase in 1981. Movement on the system was up 3 percent from the 1980 level.

(5) Hydropower production at the two run-of-the river plants, Ozark and Dardanelle, experienced a further decrease in annual production in 1981. As in 1980, part of the reason for the decrease was the low flow conditions on the mainstem. However, the production was further reduced by the loss of the last generator unit (Unit #2) at Ozark on 18 July. As with the previous four units, the unit went down because of a cracked shaft. The shaft design has been revised and new forgings will be cast for all but Unit #4. Unit #4 is being repaired using the current forging so it can be placed on-line this fall. The other four units, with new shaft forgings, are scheduled to be placed in service during the period August 1983 through June 1984.

(6) In summary, 1981 was a low flow year with a minimal amount of flood control activity but a fairly good year from the standpoint of navigation and recreation; and, from the standpoint of hydropower, we lost ground but hope to begin a recovery this summer.

4. Water Quality Report at Selected Projects. Mr. Richard Hunter, Corps of Engineers, Tulsa District, discussed the study of power releases from Tenkiller Ferry Lake and the water quality problems associated with these releases. It had been thought that the high releases were good for the trout. However, because of the low D.O. these releases were making the trout more subject to predators. It was found that small (50) releases during the non-generating period provides a zone of good D.O. for the trout.

a. The Eufaula pool manipulation provides for raising the water level during the spring for the spawning season. A drawdown during the summer allows a vegetative growth which contributes to recycling the nutrients. This vegetation is then flooded during the fall and spring to provide food for waterfowl and cover for fish.

b. The Keystone Lake eutrophication study was conducted to find a usable relationship between turbidity, phosphorus, and algae density. With this relationship established a simple measurement of turbidity can be made to get an index of eutrophication. This will be very useful in monitoring programs.

5. Nonfederal Hydropower Activities. Mr. Arthur Martin, Federal Energy Regulatory Commission. Just about every reservoir in the US has a preliminary permit or license application filed on it. To show some of the growth in applications, in 1977 there were 18 preliminary permit applications nationwide; in 1979 there were 76; in 1980 there were 504; and in 1981 there were 1800. License applications were 86 in 1980 and 98 in 1981. The license applications are expected to increase as the permits expire and developers get ready to develop the projects. A list of the preliminary permits which have been issued or are pending for the Arkansas-White-Red basins area was distributed. There are 50 permits outstanding and 7 pending. At the present time in the Arkansas basin, there are license applications for Lock and Dam Nos. 2, 9, 7, and 13. Preliminary permits on Nimrod, Blue Mountain, and John Martin Lakes have expired and new applications have been filed.

6. Federal Hydropower Activities. Mr. Ken Carter, Corps of Engineers, Little Rock District (LRD), discussed the studies that the Corps have underway. In some cases nonfederal interest may be studying the same project as the Corps. However, generally, the nonfederal objectives are different than the Federal objectives. The Arkansas River Hydropower Study was discussed. The purpose of this study is to determine the feasibility of providing additional hydropower development in conjunction with the existing projects. There are 17 low head projects included in this study and currently only four of them have hydropower facilities. The study was authorized in 1979 and was started in 1980. The study is being accomplished through a series of interim reports which cover individual or groups of projects.

7. Update on Repair of Power Units at Webbers Falls and Ozark. Mr. Edward Westmeyer, Corps of Engineers, Southwestern Division, reviewed the status of repairs. Slides were shown of the powerplant and a view of the original shaft weld joint. To avoid the cost of excavating a deep hole for the draft tube elbow slant axis instead of vertical shaft units were installed at these two plants. Because the turbine shaft is in a nearly horizontal position gravity causes it to sag of its own weight. This compresses the metal in the top side of the shaft and stretches it in the bottom side. As the shaft rotates, the metal is put through a cycle of compression and tension. Steel cannot stand cycling stress. Eventually, tiny fatigue cracks form in the surface of the metal which grow and join together until there is no longer enough metal left to hold the shaft together. The service life of the shaft can be extended to a period of 40 to 50 years by making it much stronger than it would need to be if it did not rotate and by designing out sharp edges and built-in cracks. Protecting the surface of the shaft from contact with the river water will also improve the fatigue life. The Corps and Allis Chalmers, working together, have redesigned these shafts. Several shafts are now being modified at the Allis plant in York, PA. New end forgings designed without sharp edges are being welded to the shafts. Inconel and fiberglass cladding on the outside of the shafts will keep river water away from the steel surface.

8. Status of Navigation. Mr. James Tollett, Corps of Engineers, Little Rock District, reviewed the status of navigation. Although the navigation system was closed for 2 weeks in September for lock maintenance and there were navigation restrictions on the White River in January and February, 1981 was a success measured by tonnage. The estimated 9.5 million tons in 1981 represent a 12-percent increase from the previous year. More barges and larger tows traveled on the navigation system during the past year. During 1981 2,106 towboats and 8,836 barges belonging to 77 different companies locked through Norrell Lock. The average size towboat was 2100 horsepower. Channel maintenance dredging is an annual function necessary to maintain the authorized widths and depths and in FY 81 dredging amounted to 542,000 cubic yards in the White River Entrance Channel while no dredging was required in the Arkansas River. The Little Rock District has contracted with the waterways experiment station in Vicksburg to make a movable bed model study in hopes of finding an economical solution to the problem of trying to maintain a navigable channel through the White River Entrance Channel during low stages on the Mississippi River.

9. Adjourn.

ATTENDANCE LIST

Arkansas River Basin Coordinating Committee
30 April 1982

	Name	Organization
1.	R. L. James, Acting Chairman	Corps of Engineers, SWD, Dallas, TX
2.	Douglas Edwards	Arkansas Soil & Water Conservation Commission, Little Rock, AR
3.	Mike Melton	Oklahoma Water Resources Board, Oklahoma City, OK
4.	Arthur Martin	Federal Energy Reg. Commission, Fort Worth, TX
5.	Dennis Hackbart	Soil Conservation Service, Little Rock, AR
6.	Oscar E. Hembree, Jr.	Southwestern Power Administration, Tulsa, OK
7.	Tom Riley, Jr.	Arkansas Association of Conservation District, Little Rock, AR
8.	Charles Michael	Missouri Dept. of Natural Resources, Jefferson City, MO
9.	Charles Sullivan	Corps of Engineers, SWD, Dallas, TX
10.	John R. Parks	Corps of Engineers, SWD, Dallas, TX
11.	Edward Westmeyer	Corps of Engineers, SWD, Dallas, TX
12.	James A. Proctor	Corps of Engineers, LRD, Little Rock, AR
13.	Ken Carter	Corps of Engineers, LRD, Little Rock, AR
14.	James R. Tollett	Corps of Engineers, LRD, Little Rock, AR
15.	J. T. Clements, Jr.	Corps of Engineers, LRD, Little Rock, AR
16.	Paul N. Revis	Corps of Engineers, LRD, Little Rock, AR
17.	Carroll Scoggins	Corps of Engineers, TD, Tulsa, OK
18.	Ross R. Copley	Corps of Engineers, TD, Tulsa, OK
19.	Richard Hunter	Corps of Engineers, TD, Tulsa, OK

Minutes

Twelfth Annual Meeting

Trinity River Water Management Interests

1. The twelfth annual meeting on the Trinity River Water Management Interests Group was held at the Ramada Inn Central in Fort Worth, Texas, hosted by the Tarrant County Water Control and Improvement District Number One. Thirty-seven individuals representing 23 organizations attended. Copies of the agenda and attendence roster are attached.

Mr. Arthur Denys, Chief of the Engineering Division, Southwestern Division, Corps of Engineers, opened the meeting welcoming the attendees and stating that the purpose of the group is to provide a forum for representatives of Government agencies and private organizations concerned with water resources development in the Trinity River Basin. He expressed his appreciation for the continuing support provided by the attendees and their organizations, especially those taking an active part in the program. He thanked the Tarrant County Water Control and Improvement District Number One (TCWC&ID No. 1) for hosting the meeting, then introduced Mr. Bill Hilliard, Assistant General Manager, TCWC&ID No. 1.

2. Mr. Hilliard welcomed the group to Fort Worth on behalf of the Board and Mr. Ben Hickey, General Manager, of the Tarrant County Water Control and Improvement District Number One. He stated they were pleased to be able to host this meeting.

3. Mr. Bob James, Acting Chief of the Water Management Branch at Southwestern Division, chaired the meeting. After introductions, Mr. James reviewed last year's minutes, noting that at that time, we were in the second year of a drought and forecasters were looking forward to another hot, dry summer. Conditions have changed significantly in the past few months.

4. Mr. Bill Hilliard, Assistant General Manager, TCWC&ID No. 1, presented an update on the Richland-Chambers Reservoir Project. TCWC&ID No. 1 received its signed 404 Section 10 Permit on Monday, 7 June 1982. The permit took 370 days from submission to final approval and overall about 31 months.

The Richland-Chambers Reservoir Project near Corsicana will have a volume of about 1.2 million acre-feet with a surface area of 45,000 acres and yield 187 mgd. The dam is an earthen embankment about 7 miles long with a service spillway containing twenty-four 40' gates (capacity of about 400,000 cfs). About 74 percent of the land (37,000 acres) has been acquired to date, all by negotiated sale. There are about 13,000 acres of mitigation lands, most of which will be managed by Texas Parks and Wildlife (TP&WL). Ten public use areas are scheduled using existing roads for access. A 5 cfs minimum release will be made into Alligator Creek to keep fish alive in the stilling basin and creek below the project. Instream flows from Navarro Mills and Bardwell Lakes will also be passed through with little modification. Lake area clearing will be accomplished by in-house personnel and equipment at a savings of $350-$450 per acre.

Relocations are proceeding with most highways being put in a single relocations agreement. It now appears that all oil wells in the lake area will be on pumps by the time the project is completed.

The $342.7 million funding is guaranteed by primary water customers with repayment entirely from water income. The project is about 10 months behind the original schedule, but this may be advantageous because of recent construction cost decreases. The dam should be out for bids by the end of June, and the contract let in mid-August. Construction will take about 4.5 years minimum to complete. Cost of water delivered will be about $0.24 per 1000 gallons with no debt service, cost with debt service, beginning in 1986, will be about $0.90 per 1000 gallons.

5. Update on Corps of Engineers Projects.

a. Bill Wooley, Galveston District reviewed Corps activities in the lower basin. The Wallisville Project final report and EIS have been approved by Southwestern Division and by the Board of Engineers for Rivers and Harbors. The report is being reviewed by the Chief of Engineers to determine if it should be resubmitted to the Congress. The reservoir size has been reduced from 19,000 acres to about 6,000 acres and the water supply yield reduced about 10 percent, but the project purposes are unchanged. The current design significantly reduces adverse environmental impacts. The Corps has sufficient funding to resume construction when approved. Of the $16 to $18 million in place about $9 million can be salvaged for the project.

b. Mr. Ron Turner, Fort Worth District, reviewed Corps activities in the upper basin.

(1) Fort Worth District has six multiple-purpose lakes and three floodways in operation in the Trinity Basin. Accumulated damages prevented by these nine projects through September 1981 total about $550 million compared to the total cost of $106 million.

(2) Lakeview Dam on Mountain Creek. The outlet works construction was completed in June 1982 and the embankment contract notice to proceed was issued in May 1982. The project is scheduled for completion in 1988. Current estimated cost is $230 million down significantly from the $262 million estimate last year.

(3) Ray Roberts Dam. Construction officially began in September 1980 and the embankment, spillway and outlet works contract was awarded in May 1982. Current estimated cost of the project is $280 million, again down from the $315 million estimated last year.

(4) East Fork Channel Improvements. Increment I channel construction began in March 1971 and was completed in March 1981. Increment I levee construction was initiated in May 1981 and is scheduled for completion in September 1982. Increment II is still in an inactive status due to lack of a local sponsor.

(5) Cooper Lake. The supplemental EIS has cleared all required coordination and has been submitted to the court seeking relief from the injunction. Hopefully, a favorable decision will be forthcoming and work can resume in the near future.

(6) Trinity River Project. The Phase I General Design Memorandum (GDM) and environmental statement are in the Office, Chief of Engineers for review. The project includes a multipurpose channel to Liberty, Tennessee Colony Lake and the Dallas Floodway Extension. There haven't been any changes in the project since last year's report.

(7) Fort Worth has several local protection projects in the early planning stages. Some of these are Hoover Creek in Denton, Pecan Creek, the Elm Fork and Wheeler Creek in Gainesville, Hickory Creek in Balche Springs, Edgecliff Creek in South Fort Worth and White Springs in Haltom City.

c. Mr. Tom Donaldson gave a brief update on the SWD Water Control Data System. The USGS-Comsat General Contract has expired and the equipment removed from 30 sites in the State. Fort Worth District is purchasing replacement equipment this year. The minicomputer was received in May and acceptance testing is underway. Full software development will require about 2 years, but much of the telemetered data will be available within 6 months to 1 year.

6. Mr. Allen White, Texas Department of Water Resources. In recent years, Federal funding for water resources projects in Texas has varied from a low of $47 million in 1977 to $68.5 million in 1978. From 1979 through 1981 funding averaged about $65 million. The President's budget for 1983 has proposed a total of $208.2 million of Federal funding for water resources projects in Texas. Future projects will require more State and local funding including upfront money for most projects. As of January 1982, Corps guidelines for local financing were changed to: construction costs of hydropower and municipal and industrial water supply, 100 percent; recreation, 50 percent; flood control, 35 percent; and commercial navigation, 75 percent. Planning and engineering costs are shared 50-50 with the potential to use "in kind" services for part of the local contribution.

The proposed changes in Federal policy will affect the financing of 11 currently authorized Federal reservoir projects and 17 proposed hurricane and flood protection projects in Texas. Other Federal programs with probable cuts are. Farmers Home Administration grants for rural water systems, HUD grants for water and sewage projects, Economic Development Administration funding for public works, Water Resources Council planning assistance funding, funds for water resources research, High Plains study funds will be eliminated, and the USGS mapping program will require matching funds with technical assistance credits no longer allowed.

7. Mr. Leonard Young, Federal Energy Regulatory Commission (FERC) spoke on nonfederal hydropower development. He, first, gave a brief history of the FERC, originally the Federal Power Commission, and the commission's responsibility in the licensing of nonfederal hydropower development. FERC has the authority to regulate certain aspects of hydropower development on Federal lands, on navigable waters, at Federal dams or projects which affect interstate or foreign commerce. Licenses are issued for a period of up to 50 years for each project. License requirements were given in a handout. Projects are inspected periodically during construction with followup inspections every 5 years. Preliminary

permits are issued for up to 3 years giving the permittee priority of application for license at a site while engineering and economic feasibility studies are conducted and the license application prepared. The studies are monitored and, if the permittee is not "industriously pursuing" the studies, the permit may be revoked. Interest in hydro has increased markedly in the past few years as a result of fuel increases. In 1979 there were 76 applications, 1980-504, 1981-1858, and in 1982 we expect 1200 applications. The South Central Regional Office has 54 permits outstanding with an average potential of 42 kw and an average annual energy production equaling about 7 million barrels of oil. This is only about 1 percent of the area's energy needs. Ten preliminary permits have been issued in Texas, three of which are in the Trinity River Basin. The city of Denton has permits for Lake Lewisville and Ray Roberts Dam and the Trinity River Authority has a permit for Lake Livingston. The permittees must apply for a license before the permits expire in order to keep their priority rights at the site.

8. Mr. J. A. Shewski of the City of Dallas Water Utilities spoke on the Acquisition of Water Supply from Lake Fork Reservoir. Mr. Shewski reviewed the Dallas water supply sources which have a firm yield of 450 mgd. A couple of years ago Dallas had a peak day of 510 million gallons which was near the city's 515 mgd treatment plant capacity. Projections, without Aubrey (Ray Roberts) Lake, indicated another source would be needed by 1988. Lake Fork was looked at as that source. Lake Fork Lake, owned by the Sabine River Authority (SRA), was built by the Texas Utilities Generating Company (TUDCO) which contracted for 107 mgd of the 145 mgd total yield. Construction began in 1975 and the project was declared operational in 1980 although the full capacity cannot be utilized until all gas and oil wells are relocated. TUDCO initially intended to use its portion as cooling water for a proposed nuclear generating plant but have changed their long range plans and no longer need that much water. Dallas would purchase TUDCO's interest in the lake and assume their bond obligations. At this point two major items are pending 1) Dallas City Council approval and 2) approval of SRA's amended water right permit transferring 120,000 ac-ft per year usage from industrial to municipal and requesting approval of interbasin transfer and storage in Lake Tawakoni.

Dallas will build about 20 miles of 72" pipeline from Lake Fork to Tawakoni, then use existing facilities from Tawakoni on into the city system. Estimated cost of the Lake Fork water delivered to the treatment plant will be about $0.426/1000 gallons which is slightly less than the estimated $0.45/1000 gallons from Ray Roberts Lake. Water quality has been tested and is comparable to present sources. These two sources should provide for Dallas's water needs through the year 2000.

9. Mr. Bob Nelson, Director of Utilities, City of Denton, spoke on Hydropower Development at Lewisville and Ray Roberts Dams. Feasibility studies have been completed showing both plants are feasible based on completion dates of 1984 at Lewisville and 1988 or 89 at Ray Roberts. The city is planning to submit their license applications to FERC about 1 August 1982. FERC anticipates a 12 to 18 month review period prior to issuing the license. Review time is longer than expected, which will delay the Lewisville online time about 1 year to mid 1985. The Ray Roberts online time will be 1988 or 89 depending mainly on the Corps construction schedule, closure and reservoir filling. The Lewisville facility will have two 1,000KW units installed on the two existing 60" low-flow pipes.

Approximately 65 to 80 percent of the Lewisville releases are made through these pipes. The plant will produce about 10 million KWH per year based on an average release of 250 cfs. Engineering and construction costs were estimated to be $5 million based on the 1984 completion date. Energy costs are estimated at 8¢/KWH which is primarily debt service. The Ray Roberts plant will be a 1,000 KW generator install on a 60" pipe. Based on the 1988 completion date, costs will be about $4.8 million resulting in energy costs between 9 and 9.5¢ per KWH. The Ray Roberts unit capacity is smaller because reservoir releases will be more uniform than at Lewisville. Energy costs seem high, but based on current projections the cost of gas-produced energy will equal the 8¢ per KWH cost of Lewisville energy by 1985 or 1986.

10. Mr. Ron Turner of the Corps of Engineers gave a slide presentation on the Grapevine Lake Spillway. The spillway was overtopped by about 3.5 feet in the fall of 1981 with a peak discharge of about 9,100 cfs. The peak discharge of the design flood, 191,000 cfs, was given for comparison. The 1981 flood was estimated to have a 100-year recurrence interval. The duration of overtopping was 21 days. The spillway discharges through a short cut channel into a small creek. A series of slides were presented showing damage to the creek channel. Head cutting occurred up to within a few hundred feet of the spillway apron. Severe erosion occurred along the channel with most of the material being deposited on a golf course immediately downstream. Maximum scour depth was approximately 40 feet.

11. Mr. Larry Land, US Geological Survey, Austin, Texas, spoke on USGS activities in the Trinity River Basin and the USGS in general. USGS is a Federal agency whose mission is the acquisition and dissemination of hydrologic information for the utilization and management of the Nation's water. To accomplish the mission GS 1) conducts data collection activities, in the continuing determination and evaluation of water quantity, quality and use; 2) conducts water resource perennials, describing the occurrence, availability and quality characteristics of surface and ground waters; 3) conducts supportive type basic and problem oriented research; 4) disseminates the information through annual water resources publications and research papers; 5) coordinates activities between various Federal agencies engaged in water data acquisition, and provides scientific and hydrologic assistance to other Government agencies.

The Texas District program includes about $3.5 million for basic data acquisition and $2.3 million for hydrologic investigations. These activities are funded mainly through the cooperative program with matching funds from other governmental agencies (about 75 percent). About 20 percent comes from other Federal agencies. The rest comes from the GS Federal program involving federally designated bench mark stations. Current activities include streamflows, reservoir contents, groundwater levels and flow, and water quality. Water quality activities include chemical, biological and physical analysis of both surface waters and groundwater.

Mr. Land also mentioned some possible programs that other agencies might cooperate in: 1) Evaluation of current monitoring networks to develop more efficient networks; 2) Expanding the reservoir water quality survey program; 3) Evaluate real time data collection techniques; and 4) Statistically analyze streamflow data and reservoir water quality data.

12. Dr. I. M. Rice, Executive Vice President of the Trinity Improvement Association (TIA), spoke on the Town Lake-Dallas Floodway extension projects. There are three separate projects presently under consideration in the Dallas area: 1) The city of Dallas' Town Lake project, initially proposed in 1975, will be an earthfill dam near the lower end of the present Dallas levee system. The lake will have about 400 surface acres and average 8' deep with channel enlarging upstream forming a ribbon lake to the vicinity of the Bauchman treatment plant. The Dallas City Council is presently considering including this $110 million project in a bond proposal. 2) The Dallas Levee extension project, sponsored by TRA, would extend the levees about 5 miles downstream. This $180 million project would take 6500 acres out of the flood plain for industrial use. About 5000 acres would be developed for recreational use. 3) A project to enlarge channels within the floodway, increase pumping capacity in the industrial area behind the existing levees and extend the levees to reduce backwater.

TIA proposes combining the projects. The projects are in the same geographical area, require the same type work. The combined project would require a single 404 permit. Material removed for one project could be utilized for the other projects. Combining the projects would be innovative from the standpoint of Federal-local government cooperation.

13. Earl Eiker, Office of the Chief of Engineers, Corps of Engineers. The US District Court, Washington, DC, recently ruled in favor of the National Wildlife Federation in a suit against the Administrator of EPA for not bringing releases from dams under the NPDES permit requirement of the Clean Water Act. Another case was filed against the Secretary of the Army, Corps of Engineers, in South Carolina in 1978 in conjunction with the Hartwell, Clark Hill and Richard B. Russell projects. The plantiffs alleged that discharges from these dams violate Sections 301 and 402 of the Clean Water Act by discharging pollutants from a point source into the waters of the United States.

The judge in the National Wildlife Federation suit ruled that 1) Following impoundment the chemical composition of the water was changed even producing anoxic conditions at times, 2) The outlets from a dam can be designated as point sources under the law and, 3) The stream is definitely waters of the United States. Therefore, the Administrator of EPA violated her nondiscretionary duty by failing to regulate the discharge of pollutants from dams under the NPDES and issued an injunction requiring EPA to set regulations for discharges from dams within 90 days of January 29, 1982. In the other case the initial ruling was similar. The case was appealed and the current ruling is that NPDES is not applicable. The judge considered the dam and reservoir as separate entities concluding that the pollutants were not added at the dam or point source, but were added in the reservoir and, therefore, should be treated as nonpoint sources. Therefore, no NPDES permit is required. EPA sought but was not granted a stay order. They were granted a 30-day extension, however, to get their stay request before a higher court. EPA is attempting to get legislative relief by having Section 208 of the Clean Water Act amended to state that dams do come under the designation of nonpoint sources of pollution.

AGENDA

Twelfth Annual Meeting
Trinity River Basin Water Management Interests

Date: 8 June 1982
Time: 9:30 a.m.
Place: Ramada Inn Central, I-30 at Beach, Fort Worth, Texas

	Topic
I.	Introduction - Mr. Arthur Denys, Corps of Engineers, SWD
II.	Welcome - Bill Hilliard, Tarrant County Water Control and Improvement District No. 1
III.	Minutes and Comments on 1981 Meeting - Mr. Bob James, Corps of Engineers, SWD
IV.	Update on Status of Richland-Chambers Reservoir Project - Mr. Bill Hilliard, Tarrant County Water Control and Improvement District No. 1
V.	Update on Status of Corps of Engineers Trinity River Projects - Galveston and Fort Worth Districts
VI.	Impact of the New Federalism on Water Resources Development - Mr. Allen White, Texas Department of Water Resources
VII.	Nonfederal Hydropower Development and Other Energy Items - Federal Energy Regulatory Commission
VIII.	Acquisition of Water Supply in Lake Fork Reservoir - Mr. J. A. Shewski, Dallas Water Utilities
IX.	Hydropower Development at Lewisville and Ray Roberts Dams - Mr. Bob Nelson, Director of Utilities, City of Denton
X.	Grapevine Lake Spillway - Mr. Ron Turner, Fort Worth District, Corps of Engineers
XI.	USGS Activities in the Trinity River Basin - Mr. Larry Land, US Geologic Survey
XII.	Town Lake and Dallas Floodway Extension Projects - Dr. Marsh Rice, Trinity Improvement Association
XIII.	Status of Litigation, Applicability of the Clean Water Act's Permit System to Manmade Dams - Mr. Earl Eiker, Office Chief of Engineers
XIV.	Comments and General Discussion - Municipalities, Water Districts, State Agencies, Private Organizations and Federal Agencies
XV.	Adjourn

Attendance List
Trinity River Basin Water Management Interest Meeting
8 June 1982

Name	Organization
George Muller	City of Arlington
Charles Bresett	City of Carrollton
J. A. Shewski	City of Dallas
Michael D. Day	" " "
Bob Nelson	City of Denton
J. L. Robinson	City of Fort Worth
Richard Sawey	" " " "
Johnny Sartain	City of Gainesville
Marc Guy	City of Grapevine
Robert B. Mansell	North Texas Municipal Water District
Bill Hilliard	Tarrant Co. Water Control & Imprv. Dist. No.1
Chuck Wayland	" " " " " "
Linda Sieja	" " " " " "
Sam Scott	Trinity River Authority
Larry Champagne	North Central Council of Governments
Frances Pelley	Texoma Regional Planning Commission
Barry LeBarron	" " " "
William D. McDonald	" " " "
Marsh Rice	Trinity Improvement Association
Allen White	Texas Department of Water Resources
Larry Land	US Geological Survey, Austin
David Smith	National Weather Service
David G. Morris	" " "
Milton Vrla	Dallas Power & Light Company
Tom Newsom	" " " " "
Bob Almond	Texas Power & Light Company
Rob Bennett	Texas Electric Service Company
Russell Bowen	U.S.E.P.A. Region 5
Lenard B. Young	Federal Energy Regulatory Commission
Harry T. Hall	" " " "
Ron Turner	Corps of Engineers, Fort Worth
Tom Donaldson	" " " "
Bill Wooley	Corps of Engineers, Galveston
Arthur Denys	Corps of Engineers, SWD
Bob James	" " " "
Charles Sullivan	" " " "
David Brown	" " " "

MINUTES
1982 ANNUAL MEETING
RESERVOIR CONTROL CENTER
SOUTHWESTERN DIVISION
CORPS OF ENGINEERS
30 November and 1 December 1982

1. Introduction. The 1982 Annual Reservoir Control Center (RCC) meeting was held on 30 November and 1 December 1982 in the Southwestern Division (SWD) Office, Dallas, Texas. The format of the FY82 meeting was changed from past annual meetings. The format was designed to meet the needs of Reservoir Control Section Chiefs and for those individuals having day-to-day responsibilities for water control activities. The agenda and attendance list are inclosed as attachments 1 and 2, respectively. Mr. Charles Sullivan, Chief of the RCC, opened the meeting by presenting items to be discussed. The order of discussion was determined by the group.

2. Section 7 Projects. The discussion was led by SWD. SWD's letter of 25 October to the Bureau of Reclamation (BOR) in Amarillo, Texas, was discussed. The content of the letter summarized the SWD's position on Section 7 policies. At the start of CY83, districts should begin a "Push" on developing and completing water control manuals for Section 7 projects within their area. SWD will provide the districts with additional guidance letters and recommend that no contact be made with the BOR until after the first of CY83. SWD involvement in negotiations between BOR and districts will only be on an as needed basis. Hydrologic equipment to be installed at Section 7 projects will be approved by SWDO through DM's. In closing, SWD urged that realistic charges be made to the O&M funds account titled "Scheduling Reservoir Operations."

3. Initial Filling Plans/Flood Emergency Plans. Mr. Bob James, Acting Chief, SWD Water Management Branch, discussed SWD criteria letter of 19 March 1982 and guidance letter of 20 October 1982. He stated that future plan development should be in compliance with these letters. Also stressed that districts should have these plans readily available for their use and emphasized the importance of making plans available to locals, Government agencies, etc. Also pointed out that the primary purpose of the 20 October letter is to provide guidance in developing a release schedule that would minimize sudden large releases from gated spillway structures.

It was the consensus of the group that emergency exercises should be planned and carried out periodically to keep personnel familiar with procedures. Most districts are conducting such exercises for flood operations.

4. Water Control Data System (WCDS). Mr. John Parks gave an update on the WCDS.

a. Master Plan. OCE directed that a Master Plan be developed for the total system to avoid "piecemeal" development. However, software was not presented in detail due to the uncertainty of its development. It was pointed out that an

approved Master Plan does not necessarily permit purchase of equipment. But in order to purchase equipment, it must be included in the Plan. The Master Plan presented the system in general; therefore, design memorandums are necessary for approval of detailed design and purchase of equipment.

b. Data Collection Platforms:

(1) AD - 11 installed.

(2) FWD - 37 installed.

(3) GD - none installed, awaiting receipt.

(4) LRD - none installed, awaiting channel assignments.

(5) TD - 40 installed.

SWD will still provide approval of channel assignments for DCP's from NESS. Such approval would also apply to down links. A guidance letter is currently being prepared by SWD on this subject.

c. Update of Master Manual. SWD will contact each district at a later date for their update needs. The primary consideration for a manual update would be for the purchase of down link(s). Presently FWD is pursuing the possibility of purchasing a down link. Ultimately, SWD will probably need a total of three. Justification for the purchase of down links will probably be based on the cost of leased lines vs. down links.

d. Software Design Memorandum. The final draft manual is essentially complete except for finalizing chapters 5, 6, 7 and 8. Anticipated completion date is February 1983.

e. Software Development. Mr. Gary Lakin summarized the status of SWD software development as follows:

(1) Data Base (Priority Concern).

(a) Have all the header information from WATSTORE.

(b) Weather service has said they can supply precipitation station latitude and longitude.

(c) HEC is presently working on the software to move data from the total data base to DSS data bases.

(d) A test data base has been generated on the Dallas system. There are no data in it at this time.

(2) The turbo boards have been installed in the Tulsa District H100.

(3) Plot Software:

(a) WES is going to evaluate Tektronix IGL software.

(b) Fort Worth ADP center is going to work with WES to evaluate the MEGATEK software.

(c) These studies should be completed by April 1983. At that time WES should be making a recommendation to OCE as to where the Corps should be going in graphics hardware and software.

Mr. Lakin stressed the need for each district to obligate the necessary money and manpower for software development during FY83.

5. Water Control Manuals. SWD led the discussion by summarizing past year's performance of manual development against manual schedule. Also, the projected manual schedule for FY83 was discussed. The importance of approved manuals was stressed for both Corps and Section 7 projects. Therefore, water control manual development should be given the highest priority among water control activities.

Mr. Dick Kreiner (Albuquerque District) provided a list of suggested changes to the "SWD Guide for Preparing Water Control Manuals," dated October 1977. After discussing the proposed changes, SWD suggested that each district further examine proposals and provide comments at a later date.

6. Cooperative Stream Gaging Program with the U.S. Geological Survey. This item was discussed in the Water Control Management conference which was held in Atlanta, Georgia, on 17 and 18 November 1982. It was observed that a wide variance in average cost per station existed throughout the Corps. These costs are a large portion of the water management O&M budget. Therefore, each district was encouraged to look closely at their programs for the possibility of cutting costs, i.e., consider A-E for data collection, non-publishing of flow data, etc.

7. Memorandum of Understanding (MOU) Between the Corps of Engineers and the Southwestern Power Administration (SWPA). SWPA has rewritten the arrangements to include several changes. Involved SWD districts will be given about 45 days to review and comment on the MOU. The Lower Mississippi Valley Division (LMVD) and Missouri River Division (MRD) have 60 days for review and comments. SWD will request that OCE specify who should sign the MOU, i.e., SWD for all divisions, etc. Upon receipt of Corps comments, SWD will then begin coordination with SWPA.

8. FY84 O&M Budget. Before the November 1982 congressional election, the O&M Budget was to be increased by 4 percent over the FY83 budget. But it is anticipated that the new Congress may take another look at the FY84 budget and could result in some changes.

9. Training. As a hand-out, SWD provided a list of OCE sponsored courses for FY83 thru FY86. The list contained courses in Hydrologic Engineering, Water Control/Quality and Hydraulic Design and Coastal Engineering.

10. Non-Federal Development of Hydropower at Corps Projects Mr Ralph Garland summarized Corps functions (delegated by the Federal Power Act as amended 1 April 1975) in assisting the Federal Energy Regulatory Commission (FERC) in administering the program. These functions are:

a. Review applications for permits and licenses and relicensing.

b. Review application for termination of license.

c. Supervision and inspection of operations of licensed hydro projects.

The Corps primary concern in carrying out these responsibilities is to assure against adverse impacts on the safety and integrity of Corps structures.

SWD has issued guidance letters on the review and processing procedures for permit and license applications. To date SWD has received for review numerous permits and eight license applications.

11. Closing. Some districts representatives expressed concern for the number of reports requested by SWD each year, i.e., RCC report, status of wator control manuals, etc. SWD stated that these reports are required by regulations and would be continued. The consensus of the group was that a meeting of this type should be held by-annually, especially on the WDCS.

AGENDA

1982 Annual Meeting
Reservoir Control Center
Southwestern Division
Corps of Engineers
30 November and 1 December 1982

I. INTRODUCTION

II. WATER CONTROL DATA SYSTEM

a. Master Plan

b. Data Collection Platforms

c. Update of Master Manual

d. Software Design Memorandum

e. Software Development

III. WATER CONTROL MANUALS

IV. COOPERATIVE STREAM GAGING PROGRAM WITH THE U.S. GEOLOGICAL SURVEY

V. MEMORANDUM OF UNDERSTANDING BETWEEN THE CORPS OF ENGINEERS AND THE SOUTHWESTERN POWER ADMINISTRATION

VI. FY84 O&M BUDGET

VII. NONFEDERAL DEVELOPMENT OF HYDROPOWER AT CORPS PROJECTS

VII. SECTION 7 PROJECTS

IX. INITIAL FILLING PLANS/FLOOD EMERGENCY PLANS

X. TRAINING

Attachment 1

1982 Annual RCC Meeting
30 November and 1 December

ATTENDANCE LIST

NAME	ORGANIZATION
Ralph E. Garland	SWDED-WR
Guy L. Cabbiness	SWTED-HR
Dick Kreiner	SWAED-PH
James Proctor	SWLED-HR
Jim Kosclski	SWGED-HC
Ross Copley	SWTED-HR
Bill Hammons	SWFED-HL
Arnold Escobar	SWFED-HL
Charles Sullivan	SWDED-WR
John Parks	SWDED-WR
Gary Lakin	SWDED-WR
Bob James	SWDED-W
David Brown	SWDED-WR

Attachment 2

END

DATE
FILMED

8-83

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